STATE OF NEVADA
DEPARTMENT OF HEALTH AND HUMAN SERVICES - HEALTH DIVISION
TUBERCULOSIS PREVENTION AND CONTROL PROGRAM
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FUNDING OPPORTUNITY ANNOUNCEMENT (FOA) NUMBER: 05003
PROGRAM ANNOUNCEMENT TYPE: NEW
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ANNUAL PROGRESS REPORT FOR 2009

MARCH 31, 2010

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, organizations and health professionals interested in advancing Nevada's progress toward improving our TB prevention and control measures.

By geographical size, Nevada is the 7th largest state in the nation with a large majority of the state being vast, sparsely populated areas. The state is composed of 17 counties that cover 110,540 total square miles. Of the 17 counties in Nevada, 3 are considered urban (Clark, Washoe, and Carson City), 3 are considered rural (Storey, Lyon, and Douglas), and the 11 remainder are considered frontier. Areas with a "frontier" designation are defined as having 7 persons or less per square mile. Nevada's frontier and rural counties account for only 10.7 percent of the states' population but 86.9 percent of the states' land mass. Most of Nevada's rural and frontier communities are located a considerable distance from the states' major urban area health centers, illustrating the challenges of serving these residents. Nye County, located in the southern region of the state, is the third largest area county in the continental United States and has only 2.3 persons per square mile.

Based on population, Nevada has been the fastest growing state in the nation for more than 20 years, excluding 2006. Lyon County, a rural county neighboring Carson City, was the fastest growing county per capita in the nation for five years (2002 to 2006), falling to the fourth fastest growing in 2007. From 2000 to 2005, Lyon County grew 41.6 percent, and the rural and frontier counties in Nevada combined grew 16.5 percent. By 2025, Nevada is expected to rank 15th largest in state population based on net internal migration.

Nevada's racial/ethnic composition in 2006 was 62 percent White, non-Hispanic, 23 percent Hispanic, 7 percent Black, non-Hispanic, 6 percent Asian, and 1 percent American Indian. Nevada is one of nine states in the nation that the United States Census Bureau anticipates will become a minority-majority state in the upcoming decades. As minority populations (specifically foreign-born) tend to have disproportionately higher rates of Tuberculosis (due to high TB incidence rates in the country of origin) and are more likely to be uninsured or underinsured, Nevada will need to prepare for the increased demand on its existing infrastructure, to provide appropriate medical services to control the spread of TB.

Nevada's TB Programs are staffed as follows: Susanne Paulson is the Nevada State Health Division TB Controller. 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 Maria Figgs R.N.; 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, Lyon and Douglas Counties. The Frontier and Rural Public Health Services Program (FaR) currently has 19 Community Health Nurses on staff, which coordinates the care for TB and LTBI patients in the remaining 12 counties.

Nevada Epidemiological Profile:

In line with the CDC's goal to promote and protect Healthy People in a Healthy World for Healthy People in Every Stage in Life, Nevada's Tuberculosis Program, in accordance with Nevada Revised Statutes and Nevada Administrative Code, supports tuberculosis prevention and control activities across the State.

Nevada identified 106 new active cases of TB in 2009, (case rate of 3.9 per 100,000 population and a five-year average of 104.6 new cases per year), nine additional cases received treatment for TB disease in Nevada (not included in the 106 case count), of those; seven were acquired through persons relocating to Nevada and the other two cases experienced recurrent TB within 12 months of completing a TB treatment regimen both of these circumstances make them ineligible for inclusion in the 2009 count.

The State of Nevada's Tuberculosis Programs are facing many significant challenges in addressing its mission of reducing the incidence of TB through the aggressive management of newly diagnosed cases and extensive preventative treatment of those infected with TB. The most notable and unpredictable encumbrance is the complexity of the TB cases in Nevada.

Of the 106 cases diagnosed in 2009:

- 13 (12%) were co-morbid with diabetes
- 6 (6%) were homeless
- 12 (11%) abused alcohol
- 71 (67%) first entered the U.S. with either a visa, or as an immigrant, asylee, or refugee
- 3 (3%) were co-infected with HIV
- 4 (4%) of Nevadan's with TB died
- 3 (3%) admitted to drug abuse
- 21 (19%) were pediatric cases (<19yrs of age)

From 2001 through 2009 Nevada has had 18 Multi-Drug Resistant *Mycobacterium tuberculosis* (MDR-TB) cases, the most recently diagnosed in February 2009. In addition, since 1993, Nevada has treated two Extensively Drug Resistant TB (XDR-TB) cases. Six (6) MDR-TB cases are currently receiving treatment in Clark County. All drug resistant cases of TB have complex treatment regimens with an extended duration of therapy which costs TB programs anywhere from $20,000 to $200,000 per case per year.

In 2009, 489 persons with a Class B TB notification arrived in Nevada. Of the 489 Class B immigrants entering Nevada in 2009, 10 (3%) were diagnosed with active TB disease (up from 8 in 2008 and 5 in 2007). In 2009, 65.1% of Nevada's cases were foreign born. The foreign-born population is at risk for developing active tuberculosis, as well as having resistant forms of TB, due to the increased prevalence of MDR and XDR in certain countries. To Cure these cases more extensive treatment regimens (longer therapy duration with complex medication regimens) are required. Nevada's TB program has been experiencing a regular number of drug resistant cases (5-7 annually), which elevates our public health burden.

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 has been difficult and spanned multiple calendar years. Five hundred and forty two (542) contacts have been identified to date, 89% (487) of these contacts have received complete evaluations. Among those who received evaluations, 23% (126) had positive TB screening tests, of those 57% (72) accepted treatment for LTBI. To date, 57% (41) have completed an acceptable course of LTBI therapy (33 completed a

nine months regimen while 8 completed a 6 months regimen). A total of 9 TB cases have now been linked to this outbreak (7 in Nevada and 2 in Arizona).

The TB-surveillance statistics presented in this report are collected in the Tuberculosis Information Management System (TIMS) and disseminated in a TB Fast Facts format (available at http://www.health.nv.gov/PDFs/HIV_STD_TB/TBFastFacts09.pdf or see page 24 of this report). The prevention and elimination of TB in Nevada is dependent upon (in part) meeting the challenges of controlling TB in the increasing number of foreign-born persons who come to the United States/Nevada infected with *M. tuberculosis* or who develop TB disease soon after arriving. The control and elimination of TB has been compounded by Multi-Drug Resistant TB (MDR-TB) and Extensively Drug Resistant TB (XDR-TB) strains. The cost of a more complex antibiotic regimen and the increased treatment time (average of 2 years) needed to successfully treat these resistant strains can potentially drain TB program treatment funds and threaten TB control and elimination efforts.

2009 significant Program Accomplishments:

Three new electronic data surveillance systems have been implemented by Nevada State Health Division TB-Program: 1)National Electronic Disease Surveillance System TB Program Area Module (NEDSS TB-PAM) to capture RVCT data 2) Secured Data Network – Electronic Data Notification (SDN-EDN) for TB-Classified Notifications and 3) TB Genotype Information Management System (TB-GIMS) to identify clusters and/or outbreaks. Nevada is currently working to provide access of these systems to the Local Health Authorities so that data may be directly input and utilized. Washoe County TB Clinic transitioned to an electronic medical records system and as of January 2010 the TB Clinic successfully became a paperless clinic.

The Nevada State Health Division's Tuberculosis Program is continuing to host monthly statewide TB conference calls (reinstituted 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.

Current projects include:

- Writing and reviewing Policies and Procedures,
- Creating TB Tool Kits,
- Producing targeted educational presentations (i.e., for diabetes advocacy groups, surveyors, practitioners, etc)
- NRS and NAC review and revision.

As part of an ongoing effort to improve protocols and communication between law enforcement departments and public health agencies, Southern Nevada Health District hosted a conference *Corrections and Public Health: Joining Forces to Prevent and Control the Spread of Tuberculosis* July, 2009. SNHD also produced and distributed an educational video covering practical infection control and basic background knowledge about TB. This video was produced specifically for correctional officers and serves as a prototype for future inter-agency and outreach education opportunities.

September 2009, Susanne Paulson partnered with Laurie Hickstein in Las Vegas and Diane Freedman in Reno to present TB 101 to NSHD Surveyors and Residential Group Home staff. The two conferences stressed the importance of TB screening for employees and residents. They were well attended and well received; surveyors have requested additional trainings for 2010.

The institution of case conference / case review is currently being implemented on a weekly basis at the local level. A statewide plan to present cases, discuss patient goals, treatment plans, management strategies, and lessons learned is being developed with plans to present to the TB stakeholders in Oct/Nov., 2010.

Other significant contact investigations include:

- A contact investigation was conducted at two group homes with the assistance of staff from the NSHD Bureau of Health Care Quality and Compliance. Despite having a restricted health card an active pulmonary case was able to begin working in an adult group home.
- An infusion center was the site of a contact investigation where 274 individuals were identified as having been exposed to an infectious case. As the investigation progressed, n additional 71 contacts were identified at a local hospital. Nevada received contact investigation consultation from the CDC as many of the exposed had multiple additional risk factors making the interpretation of results difficult.

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

2009 Significant program barriers

Controlling the spread of TB is a challenge within itself; Nevada's challenge is compounded by tourism and a transient population. As a top international tourist destination, Nevada has over 39.2 million visitors each year. The ability to control and prevent the spread of tuberculosis within this diverse population has become increasingly difficult each year.

Despite the strides that have been made with forging a relationship and providing education to corrections, non-adherent patients continue to consume extensive amounts of time, effort and funding as a result of trying to establish and maintain treatment regimens. In the absence of support from the legal sector, the use of GPS devices has been implemented to assist with compliance but, it has its limitations. For example, if the patient doesn't charge the GPS device we cannot use this technology to locate them. Due to economic hardship some patients have not been able to pay their electric bill; the TB program has had to assume this expense to ensure the GPS device can remain charged.

Although the detention of a non-adherent TB patient is always the last resort, that option along with a facility capable of maintaining airborne isolation protocols for infectious TB patients need to be available. Current comprehensive TB laws and isolation protocols combined with capacity building endeavors will enable the TB Programs to protect civil rights at the same time as public health.

Complications involved in the coordination/collaboration with a large hospital and infusion center for contact investigation was resource intensive and challenging (345 contacts).

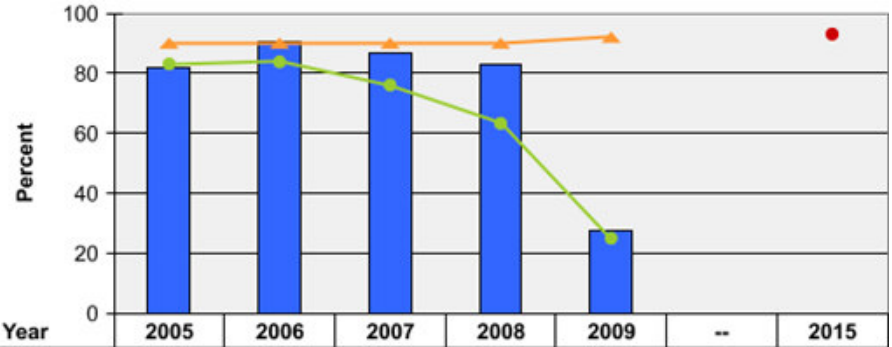
Prevention and Control Activities from January 1, 2009 through December 31, 2009

Goal 1: Improve treatment completeness among identified cases of Tuberculosis.

Objective 1.1: For patients with newly diagnosed TB for whom 12 months or less of treatment is indicated, increase the proportion of patients who complete treatment within 12 months to 93.0%

State Program Status: In Process

Treatment Completion Within 12 Months for Eligible Patients
Nevada
2005-2009



Year	2005	2006	2007	2008	2009	--	2015
Completed Treatment Within 12 Months (%)	81.9	90.2	86.4	83.0	27.6	--	
Program Targets (%)	90.0	90.0	90.0	90.0	92.0	--	
National Average (%)	83.1	83.7	76.0	63.2	24.9	--	
National Target (%)						--	93.0

Year	2005	2006	2007	2008	2009
Total Eligible Patients (N)	105	82	81	88	98
Patients Completed Treatment (Ever) (n)	92	79	76	79	27
Patients Completed Treatment Within 12 Months (n)	86	74	70	73	27
Patients Did Not Complete Treatment (n)	13	3	5	9	71

National Tuberculosis Indicators Project (NTIP) Data as of February 2010

Five Year Target Objectives For: Nevada's Completion of Treatment Objective

2004-07 National Average	2004-07 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
79.5%	87.4%	87.5%	87.6%	87.7%	87.8%	87.9%	93%

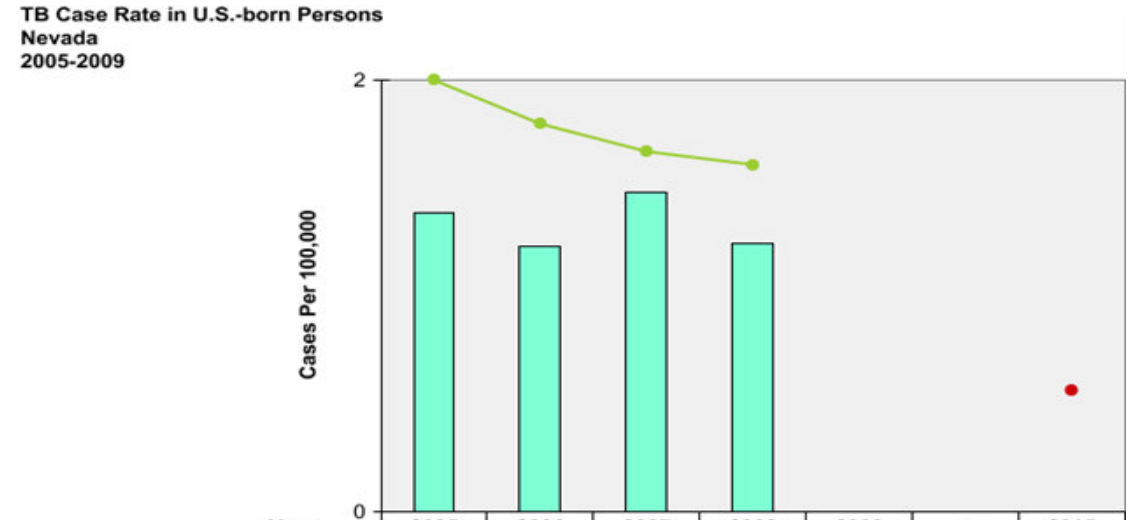
Discussion: As the standard treatment regimen for TB is 6 months or greater, analysis of the previous year's completion rate will not be available for evaluation until the following year. The complexity of the cases seen in Nevada has extended treatment regimens not only for some of our active cases but for some LTBI regimens; therefore, the adherence to treatment has been more difficult to sustain. It is anticipated that the 2008 data will be in line with previous year's results after the cases with extended treatment regimens are complete.

Goal 2: Decrease TB Case Rates.

Objective 2.1:

- Decrease the TB case rate in **U.S. - born** persons to less than 0.7 cases per 100,000.
- Increase the average yearly decline in TB case rate in U.S.-born persons to at least 11.0%.

Status: In Process



Year	2005	2006	2007	2008	2009	--	2015
Case Rate (Per 100,000)	1.7	1.5	1.8	1.6		--	
Program Targets (%)	--	--	--	--	--	--	
National Average (%)	2.5	2.2	2.1	2.0		--	
National Target (%)						--	0.7

Year	2005	2006	2007	2008	2009
Population of U.S.-born Persons in Nevada (N)	1,965,460	2,020,508	2,064,134	2,064,134	
Total Cases in U.S.-born Persons (n)	34	31	38	32	

National Tuberculosis Indicators Project (NTIP) Data as of February 2010

Five Year Target Objectives For: Nevada's U.S. Born Case Rate Objective

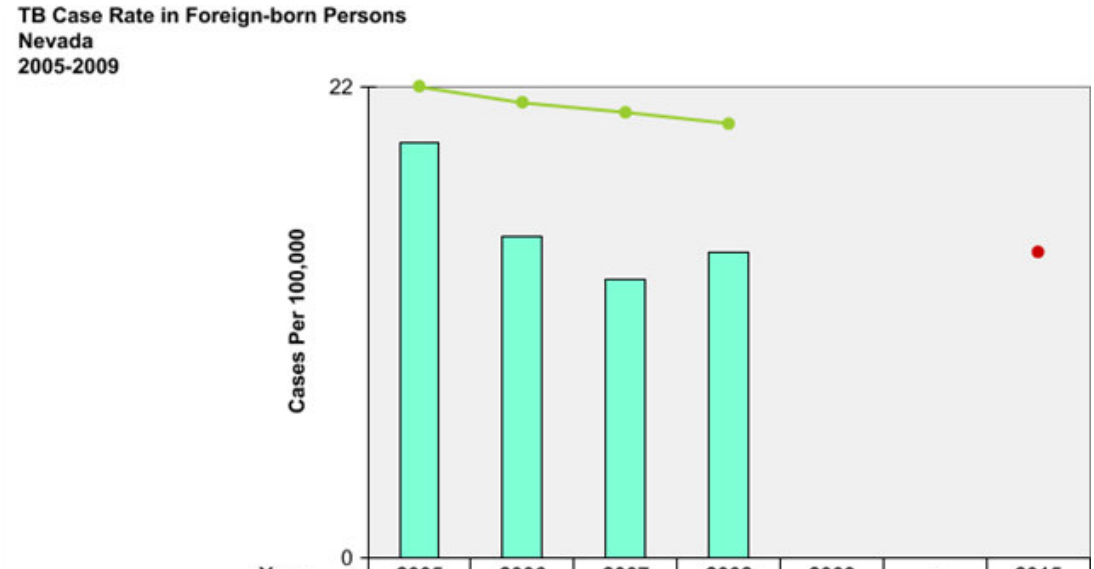
2004-08 National Average	2004-08 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
2.28	**1.72**	**1.71**	**1.70**	**1.69**	**1.68**	**1.67**	**0.7**

Discussion: Approximately one-third of Nevada's cases are U.S. born. Nevada has been fortunate to have experienced a decline in this population and maintains a rate far below the national average.

Objective 2.2:

- Decrease the TB case rate for **foreign-born** persons to less than 14.0 cases per 100,000.
- Increase the average yearly decline in TB case rate in foreign-born persons to at least 4.0%.

Status: Met / In Process



Year	2005	2006	2007	2008	2009	--	2015
Case Rate (Cases Per 100,000)	19.0	14.7	12.8	14.0		--	
Program Targets (%)	--	--	--	--	--	--	
National Average (%)	21.6	20.9	20.4	19.9		--	
National Target (%)						--	14.0

Year	2005	2006	2007	2008	2009
Population of Foreign-born Persons in Nevada (N)	410,557	475,021	501,248	501,248	
Total Cases in Foreign-born Persons (n)	78	70	64	70	

National Tuberculosis Indicators Project (NTIP) Data as of February 2010

Five Year Target Objectives For: Nevada's Foreign Born Case Rate Objective

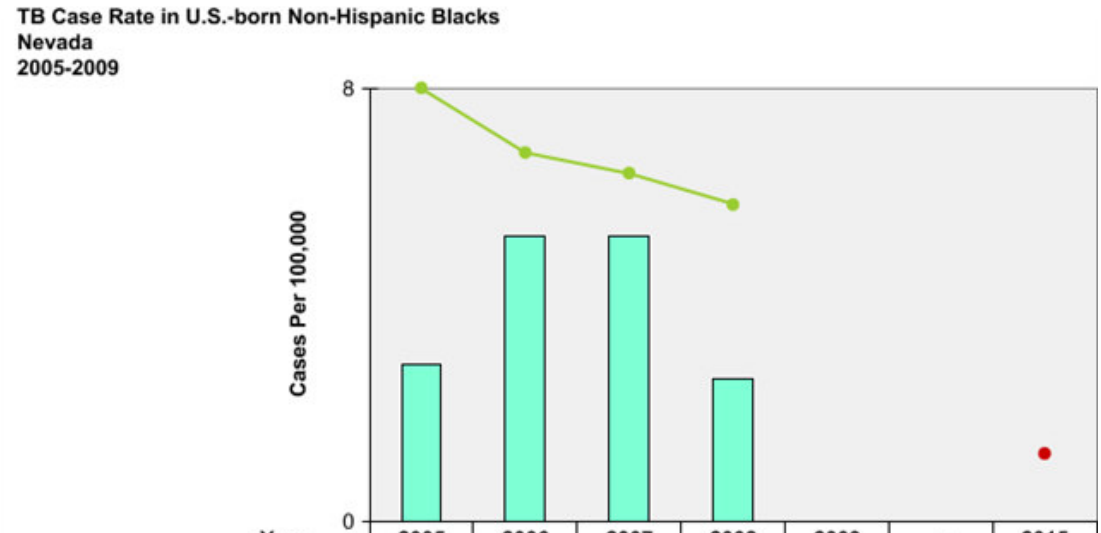
2004-08 National Average	2004-08 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
21.14	**14.9**	**14.8**	**14.7**	**14.7**	**14.6**	**14.6**	**14**

Discussion: Approximately two-thirds of Nevada's cases are Foreign born. Nevada is fortunate to be able to sustain a fairly constant number in this population and maintain a rate far below the national average.

Objective 2.3:

Decrease the TB case rate in **U.S.-born non-Hispanic** blacks to less than 1.3 cases per 100,000.

Status: Met



Year	2005	2006	2007	2008	2009	--	2015
Case Rate (Cases Per 100,000)	3.0	5.5	5.5	2.8		--	
Program Targets (%)	--	--	--	--	--	--	
National Average (%)	8.4	7.1	6.7	6.1		--	
National Target (%)						--	1.3

Year	2005	2006	2007	2008	2009
Population of U.S.-born Non-Hispanic Blacks in Nevada (N)	165,765	181,624	181,594	181,594	
Total Cases in U.S.-born Non-Hispanic Blacks (n)	5	10	10	5	

National Tuberculosis Indicators Project (NTIP) Data as of February 2010

Five Year Target Objectives For: Nevada's U.S.-Born non-Hispanic Case Rate Objective

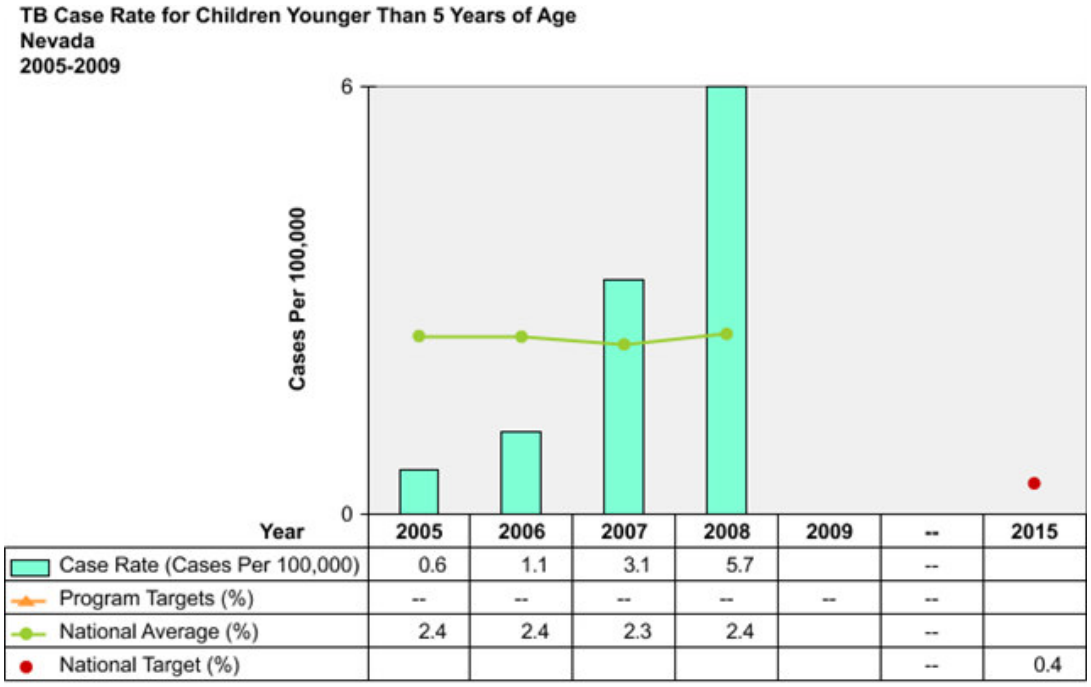
2004-08 National Average	2004-08 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
7.5	**5**	**4.5**	**4**	**3.5**	**3**	**3**	**1.3**

Discussion: Nevada's population has consistently been below national average for this objective.

Objective 2.4:

Decrease the TB case rate for **children younger than 5 years** of age to less than 0.4 cases per 100,000.

Status: Unmet



Year	2005	2006	2007	2008	2009
Population of Children Younger Than 5 Years of Age in Nevada (N)	174,686	185,339	193,080	193,080	
Total Cases in Children Younger Than 5 Years of Age Old (n)	1	2	6	11	

National Tuberculosis Indicators Project (NTIP) Data as of February 2010

Five Year Target Objectives For:
Nevada's children younger than 5 years Case Rate Objective

2004-08 National Average	2004-08 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
2.46	**2.1**	**2.0**	**1.9**	**1.8**	**1.7**	**1.6**	**0.4**

Discussion: Twenty-one children were diagnosed with TB in Nevada for 2009. An epidemiological study is being undertaken to investigate the ongoing increase in pediatric TB cases that Nevada has been experiencing since 2007.

In 2007 when the first increase was identified, Nevada's TB Controller, Nevada's Local TB Health Authority and the CDC conducted a case review for each of the cases. At that time it was determined that this was most likely an anomaly as each of the cases had identified a source case or plausible explanation for exposure/infection for each of these adolescent cases. In 2008, the case rate for this age group almost doubled from the already high 2007 case rate. As Nevada's TB Program had identified an outbreak where

many of the source cases closest contacts were teens and their children it was believed that this spike would resolve after the outbreak was contained – it didn't. Nevada was also receiving epidemiology aid from the CDC to assist with the case management of this outbreak. The 2009 data for this variable is again elevated with a rate of 3.6. The NSHD and SNHD TB Programs are teaming up with the University of Nevada's Epidemiology Dept. to review the data from the last five years. The findings will be used to improve program strategies to quickly identify and treat previously unidentified source cases infecting this susceptible group.

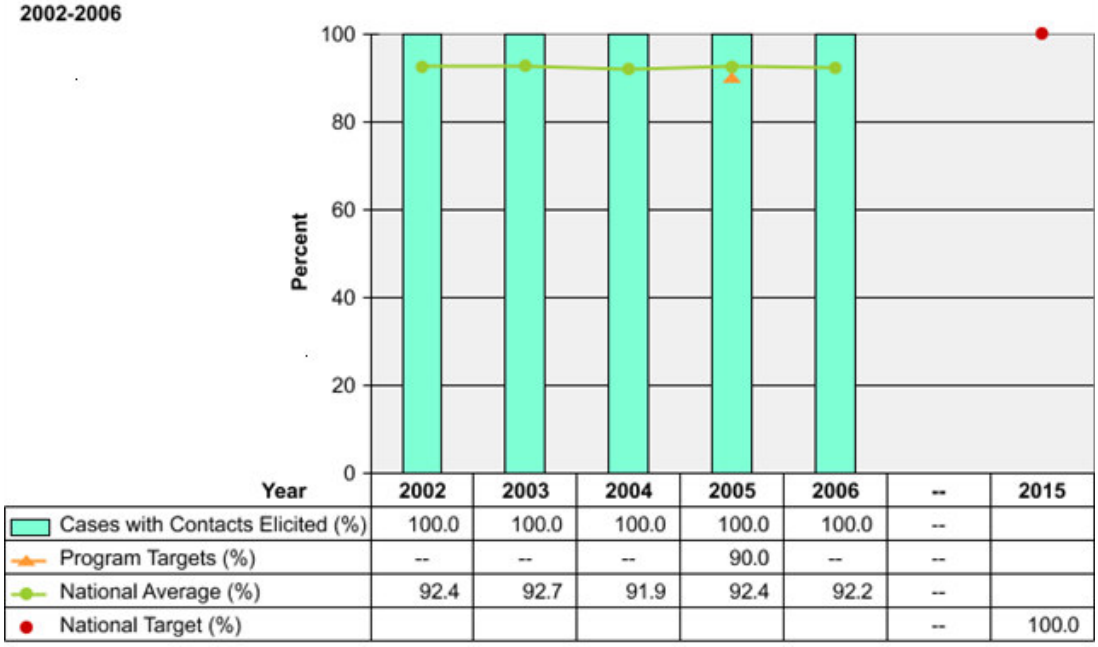
Goal 3: Improve Contact Investigations

Objective 3.1:

Increase the proportion of TB patients with positive acid-fast bacillus (AFB) sputum-smear results who have contacts elicited to 100.0%.

Status: Met

Sputum Acid-fast Bacillis (AFB) Smear-positive TB Cases with Contacts Elicited
Nevada
2002-2006



Year	2002	2003	2004	2005	2006	--	2015
Cases with Contacts Elicited (%)	100.0	100.0	100.0	100.0	100.0	--	
Program Targets (%)	--	--	--	90.0	--	--	
National Average (%)	92.4	92.7	91.9	92.4	92.2	--	
National Target (%)						--	100.0

Year	2002	2003	2004	2005	2006
Total Sputum AFB Smear-positive TB Cases for Investigation (N)	38	56	42	47	56
Cases with Contacts Elicited (n)	38	56	42	47	56
Cases with No Contacts (n)	0	0	0	0	0

National Tuberculosis Indicators Project (NTIP) Data as of February 2010

Five Year Target Objectives For: Percent of TB Cases with Contacts Elicited Objective

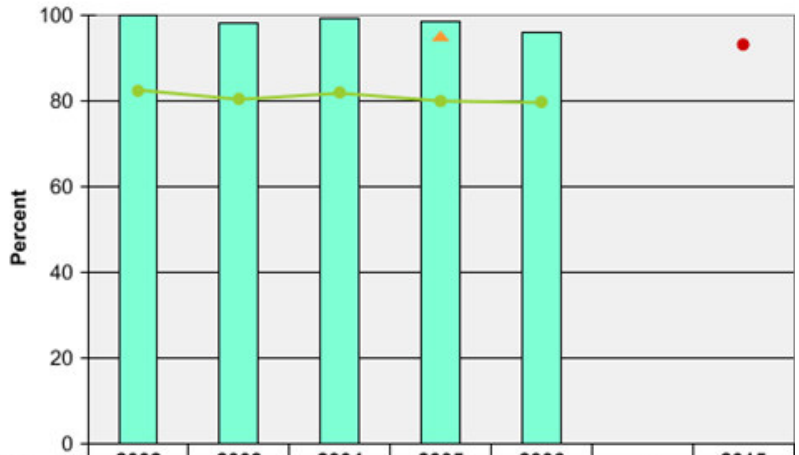
2004-06 National Average	2004-06 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
92.2	100	100	100	100	100	100	100

Discussion: The 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. 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 that did not have contacts identified.

Objective 3.2: Increase the proportion of contacts to sputum AFB smear positive TB patients who are evaluated for infection and disease to 93.0%.

Status: Met

Evaluation of Contacts to Sputum Acid-fast Bacillus (AFB) Smear-positive TB Cases
Nevada
2002-2006



Year	2002	2003	2004	2005	2006	--	2015
Contacts Evaluated (%)	99.9	97.9	99.1	98.5	95.7	--	
Program Targets (%)	--	--	--	95.0	--	--	
National Average (%)	82.2	80.3	81.8	79.8	79.6	--	
National Target (%)						--	93.0

Year	2002	2003	2004	2005	2006
Total Contacts to Sputum AFB Smear-positive TB Cases (N)	836	1,328	2,751	1,146	2,135
Contacts Evaluated (n)	835	1,300	2,727	1,129	2,044
Contacts Not Evaluated (n)	1	28	24	17	91

National Tuberculosis Indicators Project (NTIP) Data as of February 2010

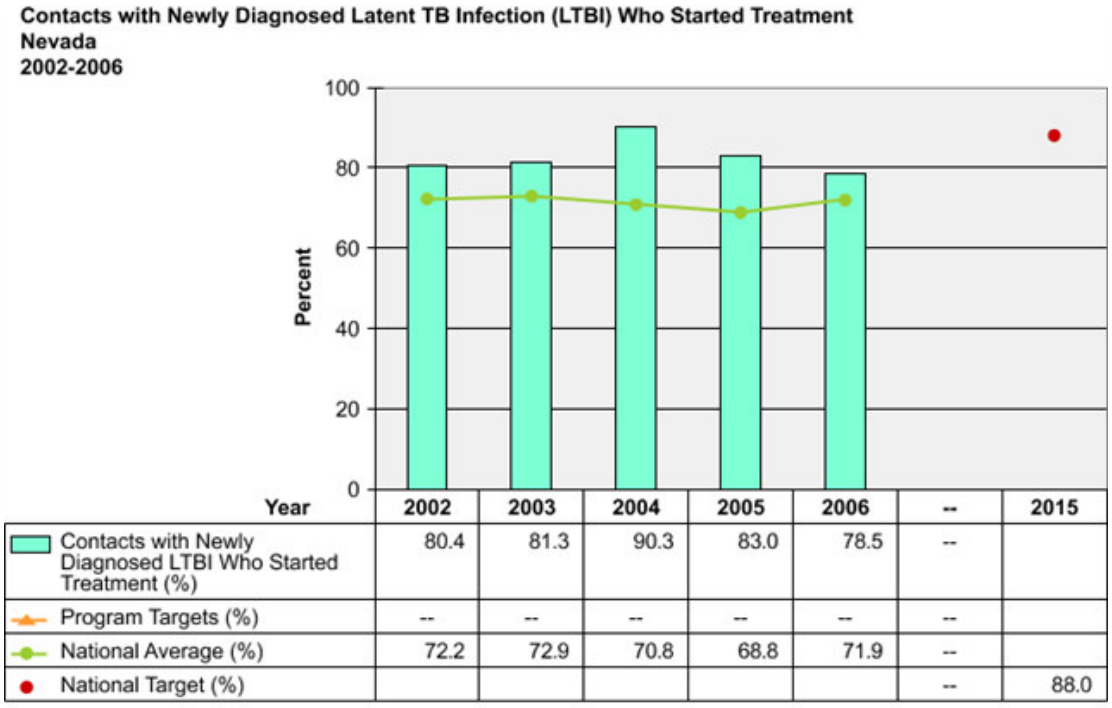
Five Year Target Objectives For: Percent of TB Contacts Who Receive an Evaluation

2004-06 National Average	2004-06 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
80	97	97	97	97	97	97	93

Discussion: In order to obtain complete evaluations, Nevada TB programs continue to actively pursue all contacts identified. To expedite the evaluation process the use of IGRA's has been utilized whenever possible. Educating contacts as the importance of knowing their status in order to make an informed decision regarding prophylactic therapy, and the use of incentives and enablers are all methods used to elicit complete evaluation screenings.

Objective 3.3: Increase the proportion of contacts to sputum AFB smear-positive TB patients with newly diagnosed latent TB infection (LTBI) who start treatment to 88.0%

Status: Met



Year	2002	2003	2004	2005	2006
Total Contacts with Newly Diagnosed LTBI (N)	143	321	680	235	506
Contacts Who Started Treatment (n)	115	261	614	195	397
Contacts Who Did Not Start Treatment (n)	28	60	66	40	109

National Tuberculosis Indicators Project (NTIP) Data as of February 2010

Five Year Target Objectives For:
Percent of TB Contacts Who Start an LTBI Treatment Regimen

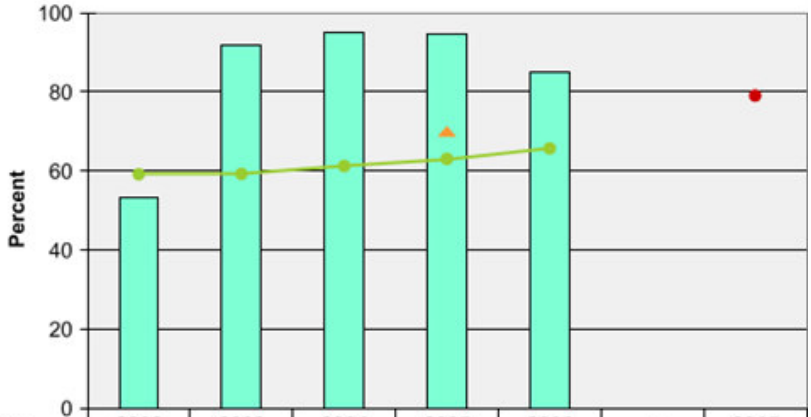
2004-06 National Average	2004-06 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
70.5	**83.9**	**83.9**	**84**	**84.1**	**84.2**	**84.3**	**88**

Discussion: Preventative therapy is not mandatory, but highly recommended to all persons diagnosed with latent TB infection (LTBI) in Nevada. The Local Health Authorities educate contacts about LTBI treatment options, and provide extensive education and counseling regarding the advantages of completing a treatment regimen for LTBI. They explain possible risks for the development of active TB disease if LTBI treatment is not completed and the protection LTBI therapy may provide. If the contact decides not to participate in a preventative treatment regimen they are provided information/education regarding the signs & symptoms to be aware of for TB disease and instructed to seek medical services if they experience these signs and/or symptoms. The TB Program will continue with activities to ensure this objective reaches its highest possible percent participation level.

National Objective 3.4: For contacts to sputum AFB smear-positive TB patients who have started treatment for the newly diagnosed LTBI, increase the proportion who complete treatment to 79.0%

Status: Met

Treatment Completion for Contacts Who Have Started Treatment for Newly Diagnosed Latent TB Infection (LTBI)
Nevada
2002-2006



Year	2002	2003	2004	2005	2006	--	2015
Contacts Who Completed Treatment (%)	53.0	92.0	95.0	94.4	84.9	--	
Program Targets (%)	--	--	--	70.0	--	--	
National Average (%)	59.1	59.2	61.2	63.0	65.6	--	
National Target (%)						--	79.0

Year	2002	2003	2004	2005	2006
Total Contacts Who Have Started Treatment for Newly Diagnosed LTBI (N)	115	261	614	195	397
Contacts Who Completed Treatment (n)	61	240	583	184	337
Contacts Who Did Not Complete Treatment (n)	54	21	31	11	60

National Tuberculosis Indicators Project (NTIP) Data as of February 2010

Five Year Target Objectives For:
Percent of TB Contacts Who Complete LTBI Treatment Regimen

2004-06 National Average	2004-06 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
63.3	**85**	**85.1**	**85.2**	**85.3**	**85.4**	**85.5**	**79**

Discussion: Preventative therapy is not mandatory, but highly recommended to all persons diagnosed with latent TB infection (LTBI) in Nevada. Whether it's due to the side effects associated with INH, the extensive time commitment required to complete a treatment regimen (compared to other communicable diseases), or the fact that the person does not feel ill, some contacts decide not to complete preventative therapy for LTBI. Nevada's TB Program utilizes incentives, enablers, and counseling to address this challenge. The TB Program will continue with activities to ensure this objective maintains its highest possible percent completion level.

Goal 4: Improve Laboratory Reporting

Objective 4.1: Increase the proportion of culture-positive or nucleic acid amplification (NA) test-positive TB cases with a pleural or respiratory site of disease that have the identification of *M. tuberculosis* complex reported by laboratory within 7 days from the date that the initial diagnostic pleural or respiratory specimen was collected to 80%.

Status: Unknown

Five Year Target Objectives For:
Percent of TB cases with an identity of MTBC reported within 7 days of specimen collection

National Average	Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
Not Available	N/A – New	75%	76%	77%	78%	79%	80%

Discussion: As this is a new National Objective Nevada does not have data for this. This will be calculated by filtering the RVCT data for cases that report positive for questions 18, 20 or 21(culture or NAA positive) and then subtracting that the NAA was reported from the date the specimen was collected.

Objective 4.2: Increase the proportion of culture-positive TB cases with initial drug-susceptibility results reported to 100.0%.

Status: Unknown

Five Year Target Objectives For:
Percent of TB culture-positive cases with drug-susceptibility results reported

2004-08 National Average	2004-08 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
96.9	96.9	96.9	97	97.1	97.2	97.3	100

Discussion: 92% of cultures receive DST within 28 days. Occasionally an organism is mixed with another MOTT and a pure culture is not able to be obtained. On one occasion the organism did not grow in susceptibility media. Reference laboratories are utilized to assist with attaining susceptibilities when needed.

Goal 5: Expedite Treatment Initiation

Objective 5.1: Increase the proportion of TB patients with positive AFB sputum-smear results who initiate treatment within 7 days of specimen collection to 90%.

Status: Unknown

Five Year Target Objectives For:
Percent of MTB suspects with positive AFB smears that begin treatment with 7 days of specimen collection

2004-08 National Average	2004-08 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
Not Available	New – N/A	90%	90%	90%	90%	90%	TBD

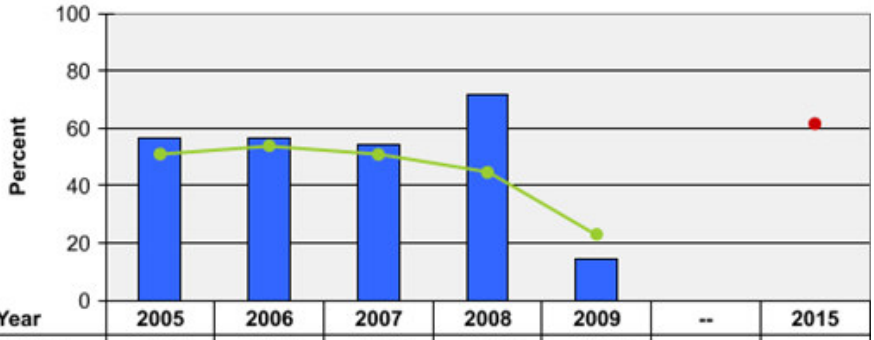
Discussion: As this is a new objective data is not yet available. Date therapy started (question 36) and the date specimen collected (question 17) of the new RVCT will be used to determine our performance. Every effort will be made to assist providers in the appropriate management of TB suspect patients.

Goal 6: Improve Sputum Culture Conversion Rates

Objective 6.1: Increase the proportion of TB patients with positive sputum culture results who have documented conversion to sputum culture-negative within 60 days of treatment initiation to 61.5%.

Status: Met

Sputum Culture Conversion Documented Within 60 Days of Treatment Initiation for Patients with Positive Sputum Culture Results
Nevada
2005-2009



Year	2005	2006	2007	2008	2009	--	2015
Documented Conversion Within 60 Days (%)	56.7	56.2	54.2	71.4	14.3	--	
Program Targets (%)	--	--	--	--	--	--	
National Average (%)	50.9	53.8	50.8	44.5	22.9	--	
National Target (%)						--	61.5

Year	2005	2006	2007	2008	2009
Total TB Patients with Positive Sputum Culture Results Initiated Treatment (N)	67	64	59	49	49
Converted Within 60 Days (n)	38	36	32	35	7
Converted After 60 Days (n)	16	22	22	8	4
No Documentation of Conversion (n)	13	6	5	6	38

National Tuberculosis Indicators Project (NTIP) Data as of February 2010

Five Year Target Objectives For:
Percent of sputum culture conversions which occur within 60 days of treatment initiation

2004-08 National Average	2004-08 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
46.6%	**52.4%**	**53%**	**53.5%**	**54%**	**54.5%**	**56%**	**61.5%**

Discussion: With the complexity of the TB cases being treated in Nevada, extended treatment regimens are not uncommon due to extended conversion times. In 2008, Nevada realized a significant improvement in culture conversions. This is attributed, in part, to the hiring of a full time pharmacists (Dr. Christina Madison) who specializes in developing customized treatment regimens for TB patients, which take into consideration additional

risk factors a patient may have which could impair absorption and/or efficacy as well as difficulties associated with drug interactions. Emphasis has also been given to improved documentation of RVCT data, which allows for a more accurate conversion rate.

Goal 7: Improve the Quality and Completeness of TB Data Reporting

Objective 7.1: Increase the completeness of each core Report of Verified Case of Tuberculosis (RVCT) data item reported to CDC, as described in the TB Cooperative Agreement announcement to 99.2%

Status: Met

National Objective:

Increase the completeness of each core Report of Verified Case of Tuberculosis (RVCT) data item reported to CDC, as described in the TB Cooperative Agreement announcement, to 99.2% by 2015.

Variable	RVCT Fields	Nevada 2008			Complete (%)
		(N)	Unknown Missing (n)	Complete (n)	
Date of Birth	7	102	0	102	100.0
Race	10	102	0	102	100.0
Country of Origin[a]	11	102	0	102	100.0
Month-Year Arrived in U.S.[a]	12	70	0	70	100.0
Status at Diagnosis of TB	13	102	0	102	100.0
Previous Diagnosis of Tuberculosis	14	102	0	102	100.0
Major Site of Disease	15	102	0	102	100.0
Sputum Smear	17	102	0	102	100.0
Sputum Culture	18	102	2	100	98.0
Culture of Tissue and Other Body Fluids	20	102	2	100	98.0
Nucleic Acid Amplification Test Result	new	N/A	N/A	N/A	N/A
Chest X-ray	21	102	0	102	100.0
Tuberculin Skin Test at Diagnosis	22	102	0	102	100.0
HIV Status	23	102	0	102	100.0
Initial Drug Regimen[b]	27	102	0	102	100.0
Date Therapy Started[b]	28	102	0	102	100.0
Initial Drug Susceptibility Results[c]	33	69	0	69	100.0
Susceptibility Results[d]	34	67	0	67	100.0
Sputum Culture Conversion Documented[e]	35	56	4	52	92.9
Date Therapy Stopped[b]	36	102	11	91	89.2
Reason Therapy Stopped[b]	37	102	10	92	90.2
Directly Observed Therapy[b]	39	102	10	92	90.2
TOTAL		1,996	39	1,957	98.0

a. Data collected if not born in United States or the U.S. affiliated Pacific Islands.
b. Data collected only if alive at diagnosis and started therapy.
c. Data collected on culture-positive cases only.
d. Data collected on culture-positive cases with Initial Drug Susceptibility Results (RVCT field 33) reported as 'Yes'.
e. Data collected on sputum culture-positive cases that are alive at diagnosis and have started therapy.

National Tuberculosis Indicators Project (NTIP) Data as of February 2010

Five Year Target Objectives For:
Percent of Complete RVCT data reported to CDC

2004-08 National Average	2004-08 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
Not Available	**93.4%**	**94%**	**95%**	**96%**	**97%**	**98%**	**99.2%**

Discussion: Nevada met this goal in 2008 with a 98% completion rate, it is anticipated that once the 2009 cases are complete Nevada will again meet this goal. In 2009, Nevada installed and implemented the NEDSS TB-PAM system to manage the Nevada TB Program's RVCT data. Two pilot projects have been initiated which will allow the three major TB reporting areas (Carson, Clark and Washoe Counties) to input RVCT data directly into the NEDSS system. This direct input method will allow data to be submitted complete and timely data capturing, ultimately enabling Nevada to meet the 2015 National Objective of 99.2% completeness of reporting.

Objective 7.2: Increase the completeness of each core Aggregated Reports of Program Evaluation (ARPEs) data items reported to CDC, as described in the TB Cooperative Agreement announcement, to 100%.

Status: Met

Five Year Target Objectives For:
Percent of Complete ARPE data reported to CDC

2004-08 National Average	2004-08 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
Not Available	100%	100%	100%	100%	100%	100%	100%

Discussion: Nevada has, and will continue to, report complete ARPE data as described in the TB Cooperative Agreement.

Objective 7.3: Increase the completeness of each core Electronic Disease Notification (EDN) system data item reported to CDC, as described in the TB Cooperative Agreement announcement, to 90%

Status: Unknown

Five Year Target Objectives For:
Percent of Complete EDN data reported to the CDC

2004-08 National Average	2004-08 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
Not Available	N/A – New variable	50%	50%	51%	52%	53%	100%

Discussion: The Electronic Data Notification System (EDN) system deployed in 2009 by the CDC's Department of Quarantine has improved the notification of the Class A, B1, B2, and B3 immigrants and refugees to the State TB Program. Nevada has experienced difficulties updating the evaluation information performed at the local level in the national system. Access to the EDN system has recently been obtained by both Clark and Washoe County TB clinics. These clinics will begin accessing and inputting data directly into the EDN system by May 2010. This objective will be evaluated after the implementation of these new reporting protocols are complete and reports are able to be generated.

Goal 8: Improve the Recommendation of Initial Therapy for TB Suspects

Objective 8.1: Increase the proportion of patients who are started on the recommended initial 4-drug regimen when suspected of having TB disease to 93.4%.

Status: Unknown

Five Year Target Objectives For:
Percent of suspects started on 4-drug regimen

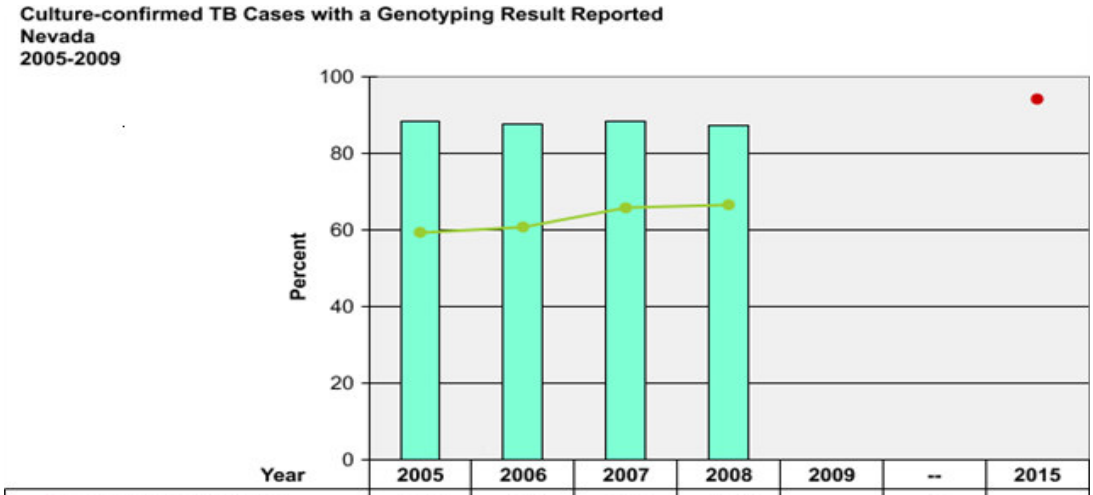
2004-08 National Average	2004-08 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
87%	96%	96%	96%	96%	96%	96%	93.4%

Discussion: As LTBI is not a reportable disease in Nevada this objective can only be recorded for suspects that have care coordinated through the TB Program or those suspects whose physicians submit *Confidential Morbidity Report Form* per NRS441A.150. In order to collect this data, this variable has been added to our standard quarterly report form.

Goal 9: Obtain a Genotype for Culture Positive Cases

Objective 9.1: Increase the proportion of culture-confirmed TB cases with a genotyping result reported to 94.0%.

Status: Met



Year	2005	2006	2007	2008	2009	--	2015
With Genotyping Result Reported (%)	88.2	87.4	88.1	87.0		--	
Program Targets (%)	--	--	--	--	--	--	
National Average (%)	59.2	60.6	65.6	66.4		--	
National Target (%)						--	94.0

Year	2005	2006	2007	2008	2009
Total Culture-confirmed TB Cases (N)	93	87	84	69	
With a Genotyping Result Reported (n)	82	76	74	60	
With No Genotyping Result Reported (n)	11	11	10	9	

National Tuberculosis Indicators Project (NTIP) Data as of February 2010

Five Year Target Objectives For: Percent of culture positive MTB cases that have genotype reported

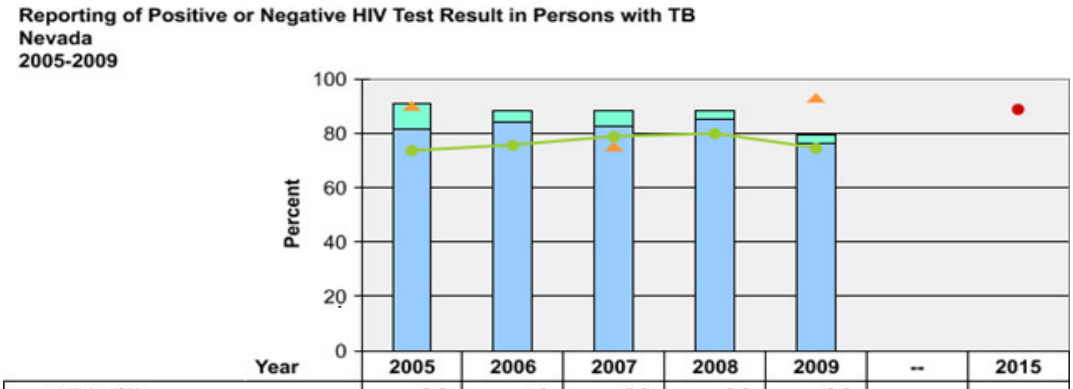
2005-07 National Average	2005-08 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
61.8%	96%	96%	96%	96%	96%	96%	94%

Discussion: This is a new National Objective added to the new RVCT form implemented nationwide January 2009. The Nevada State Public Health Laboratory submits every organism identified as MTBC for genotyping as part of their standard procedure. 100% of isolates were submitted in 2009. It is anticipated that The NEDSS system will be updated to reflect this by April 30, 2010.

Goal 10: Know the HIV Status of TB cases

Objective 10.1: Increase the proportion of TB cases with positive or negative HIV test result reported to 88.7%.

Status: Met



Year	2005	2006	2007	2008	2009	--	2015
HIV+ (%)	9.8	4.0	5.9	2.9	2.8	--	
HIV- (%)	81.2	84.2	82.4	85.3	76.4	--	
HIV Test Result Reported (%)	91.1	88.1	88.2	88.2	79.2	--	
Program Targets (%)	90.0	--	75.0	--	93.0	--	
National Average (%)	73.5	75.4	78.6	79.8	74.4	--	
National Target (%)						--	88.7

Year	2005	2006	2007	2008	2009
Total TB Cases (N)	112	101	102	102	106
HIV+ (n)	11	4	6	3	3
HIV- (n)	91	85	84	87	81
HIV Test Result Reported (n)	102	89	90	90	84
HIV Test Result Not Reported as positive or negative (n)	10	12	12	12	22

National Tuberculosis Indicators Project (NTIP) Data as of February 2010

Five Year Target Objectives For: Percent of TB cases with an HIV result reported

2004-08 National Average	2004-08 Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
75.8%	90%	90%	90%	90%	90%	90%	88.7%

Discussion: Nevada TB Protocols are currently being revised to reflect our decision to test all TB patients for HIV, regardless of age. Occasionally low risk children are exempt from testing; this is decided on a case by case basis. For persons who have died prior to TB diagnosis (or soon after) HIV status is reported if the documented results are available within the last two years. This NTIP report does not reflect recently entered RVCT data. Nevada records indicate that 90 cases were negative and 3 were positive which gives Nevada 87% (93/106) of TB cases were tested for HIV in 2009.

Goal 11: Improve Immigrant and Refugee Evaluations

Objective 11.1: For immigrants and refugees with abnormal chest x-rays read overseas as consistent with TB, increase the proportion who initiate medical evaluation within 30 days of arrival to 20%

Status: Unknown

Five Year Target Objectives For:
Percent of immigrants and refugees with a TB classification that receive an evaluation within 30 days of arrival

National Average	2008 Nevada	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
Not Available	15%	16%	17%	18%	19%	20%	20%

Objective 11.2: For immigrants and refugees with abnormal chest x-rays read overseas as consistent with TB, increase the proportion who complete medical evaluation within 90 days of arrival to 45%.

Status: Unknown

Five Year Target Objectives For:
Percent of immigrants and refugees with a TB classification that complete an evaluation within 90 days of arrival

National Average	2008 Nevada	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
Not Available	40%	41%	42%	43%	44%	45%	45%

Objective 11.3: For immigrants and refugees with abnormal chest x-rays read overseas as consistent with TB and who are diagnosed with latent TB infection (LTBI) during evaluation in the U.S., increase the proportion who start treatment to 60%.

Status: Unknown

Five Year Target Objectives For:
Percent of immigrants and refugees diagnosed with LTBI who start treatment

National Average	Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
Not Available	N/A – New variable	50%	52%	54%	56%	58%	60%

Objective 11.4: For immigrants and refugees with abnormal chest x-rays read overseas as consistent with TB, and who are diagnosed with latent TB infection (LTBI) during evaluation in the U.S. and started on treatment, increase the proportion who complete LTBI treatment to 50%.

Status: Unknown

Five Year Target Objectives For:
Percent of immigrants and refugees diagnosed with and started on LTBI therapy who complete treatment regimen

National Average	Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
Not Available	**N/A – New variable**	**40%**	**42%**	**44%**	**46%**	**48%**	**50%**

Discussion: As this is a new National Objective, Nevada does not have data for 11.1-11.4 objectives. The Local Health Authorities have recently begun entering this information directly into the SDN- EDN. Once reports are generated from this information management system we will be able to evaluate our success.

Goal 12: Increase Sputum-Culture Reported

Objective 12.1: Increase the proportion of TB cases with a pleural or respiratory site of disease in patients ages 12 years or older that have a sputum-culture result reported to 95.7%.

Status: Unknown

Five Year Target Objectives For:
Percent of TB patients 12yr or older that have a sputum culture result reported

2003-07 National Average	Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
89.9%	**N/A – New variable**	**90%**	**91%**	**92%**	**93%**	**94%**	**95.7%**

Discussion: This information is calculated using information provided on the RVCT form. Cases with question number 16 that have Pulmonary or Pleural site of disease indicated are filtered by age (question 8), for those that are ≥ 12 years how many have a result reported for the culture. For 2009: 94 cases were identified as having pleural or respiratory identified as the site of disease, 80 of those are 12yrs old or greater of those 53had positive cultures, 18 had negative cultures, 5 had 'not done' (postmortem diagnosis is the most common reason for this) indicated and 4 were 'unknown or pending'. This gives Nevada an 88.75% of the 2009 cases ≥ 12 yrs of age have a culture result reported.

Goal 13: Improve Program Evaluations

Objective 13.1: Increase program evaluation activities by monitoring program progress and tracking evaluation status of cooperative agreement recipients.

Status: Complete

Discussion: See *Appendix A* for the program evaluation plan in its entirety.

Objective 13.2: Increase the percent of cooperative agreement recipients that have an evaluation focal point.

Status: Complete

Discussion: The Washoe County TB Program Coordinator has agreed to be the evaluation focal point.

Goal 14: Develop a Human Resource Development Plan

Objective 14.1: **Increase the percent of cooperative agreement recipients who submit a program-specific human resource development plan (HRD), as outlined in the TB Cooperative Agreement announcement, to 100.0%.**

Objective 14.2: Increase the percent of cooperative agreement recipients who submit a yearly update of progress-to-date on HRD activities to 100.0%

Status: Unmet

Goal 15: Training Focal Point

Objective 15.1: Increase the percent of cooperative agreement recipients that have a TB training focal point.

Status: Unmet

Five Year Target Objectives For:
Percent of cooperative agreement recipients that have a TB training focal point

2003-07 National Average	Nevada Average	2010 Objective	2011 Objective	2012 Objective	2013 Objective	2014 Objective	2015 National Objective
89.9%	**N/A – New variable**	**90%**	**91%**	**92%**	**93%**	**94%**	**95.7%**

Discussion: As Goals 14 and 15 are new National Objectives, Nevada has not yet developed a formal Human Resource plan but, plans to establish a TB training focal point for each jurisdiction.
The Nevada TB Programs application has been chosen to be the 2010 recipient for a Nurse to Nurse training conference by the Francis J Curry Center. This conference is slated to take place late Oct. or early Nov.

Nevada State Health Division ~ Tuberculosis Program

Tuberculosis Fast Facts, 2005 - 2009

	2009			2008			2007			2006			2005		
County	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****
Clark	87	82.1%	4.4	91	89.2%	4.6	92	90.2%	4.7	89	88.1%	4.7	90	80.4%	5.0
Washoe	14	13.2%	3.3	11	10.8%	2.6	6	5.9%	1.4	11	10.9%	2.7	16	14.3%	4.0
Carson City	2	1.9%	3.5	0	0.0%	0.0	2	2.0%	3.5	0	0.0%	0.0	1	0.9%	1.8
All Other Counties*	3	2.8%	1.0	0	0.0%	0.0	2	2.0%	0.7	1	1.0%	0.4	5	4.5%	1.9
Gender	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****
Male	63	59.4%	4.5	68	66.7%	4.9	61	59.8%	4.4	66	65.3%	5.0	68	60.7%	5.3
Female	43	40.6%	3.2	34	33.3%	2.5	41	40.2%	3.1	35	34.7%	2.7	44	39.3%	3.6
Race/Ethnicity	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****
White, non-Hispanic	18	17.0%	1.1	16	15.7%	0.9	18	17.6%	1.1	18	17.8%	1.1	28	25.0%	1.8
Black, non-Hispanic	14	13.2%	7.4	10	9.8%	5.3	14	13.7%	7.5	17	16.8%	9.4	11	9.8%	6.4
Hispanic	26	24.5%	4.1	43	42.2%	6.7	37	36.3%	5.8	38	37.6%	6.2	36	32.1%	6.1
Asian	46	43.4%	26.5	32	31.4%	18.4	32	31.4%	18.5	28	27.7%	16.8	37	33.0%	23.2
Native American	2	1.9%	5.5	1	1.0%	2.7	1	1.0%	2.8	0	0.0%	0.0	0	0.0%	0.0
Age at Diagnosis	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****
0 to 9	14	13.2%	3.6	12	11.8%	3.1	8	7.8%	2.1	3	3.0%	0.8	4	3.6%	1.1
10 to 19	7	6.6%	1.8	3	2.9%	0.8	8	7.8%	2.1	3	3.0%	0.8	5	4.5%	1.4
20 to 29	10	9.4%	2.5	13	12.7%	3.2	15	14.7%	3.8	16	15.8%	4.2	14	12.5%	3.8
30 to 39	12	11.3%	3.0	14	13.7%	3.5	13	12.7%	3.3	15	14.9%	3.9	17	15.2%	4.7
40 to 49	18	17.0%	4.5	20	19.6%	4.9	11	10.8%	2.7	20	19.8%	5.2	24	21.4%	6.5
50 to 59	15	14.2%	4.5	14	13.7%	4.2	16	15.7%	4.8	22	21.8%	6.9	16	14.3%	5.2
60+	30	28.3%	6.9	26	25.5%	6.0	31	30.4%	7.2	22	21.8%	5.3	32	28.6%	8.1
HIV Status	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****
HIV Positive	3	2.8%	N/A	3	2.9%	N/A	6	5.9%	N/A	4	4.0%	N/A	11	9.8%	N/A
HIV Negative	90	84.9%	N/A	86	84.3%	N/A	84	82.4%	N/A	85	84.2%	N/A	91	81.3%	N/A
Not Offered	10	9.4%	N/A	12	11.8%	N/A	11	10.8%	N/A	12	11.9%	N/A	10	8.9%	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	0	0.0%	N/A
Unknown	3	2.8%	N/A	1	1.0%	N/A	1	1.0%	N/A	0	0.0%	N/A	0	0.0%	N/A
Country of Origin	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****	***n***	***% of Total***	***Rate per 100,000*****
United States	37	34.9%	N/A	32	31.4%	N/A	37	36.3%	N/A	31	30.7%	N/A	33	29.5%	N/A
Philippines	35	33.0%	N/A	22	21.6%	N/A	26	25.5%	N/A	20	19.8%	N/A	26	23.2%	N/A
Mexico	10	9.4%	N/A	25	24.5%	N/A	24	23.5%	N/A	26	25.7%	N/A	31	27.7%	N/A
Ethiopia	7	6.6%	N/A	5	4.9%	N/A	3	2.9%	N/A	5	5.0%	N/A	3	2.7%	N/A
China	0	0.0%	N/A	3	2.9%	N/A	4	3.9%	N/A	4	4.0%	N/A	1	0.9%	N/A
Vietnam	4	3.8%	N/A	1	1.0%	N/A	0	0.0%	N/A	0	0.0%	N/A	2	1.8%	N/A
India	0	0.0%	N/A	0	0.0%	N/A	1	1.0%	N/A	1	1.0%	N/A	2	1.8%	N/A
Other	13	12.3%	N/A	14	13.7%	N/A	7	6.9%	N/A	14	13.9%	N/A	14	12.5%	N/A
TOTAL	***N***	***% of Total***	***Rate per 100,000*****	***N***	***% of Total***	***Rate per 100,000*****	***N***	***% of Total***	***Rate per 100,000*****	***N***	***% of Total***	***Rate per 100,000*****	***N***	***% of Total***	***Rate per 100,000*****
Nevada	106	100.0%	3.9	102	100%	3.7	102	100%	3.8	101	100%	3.9	112	100%	4.5

Source: Nevada Tuberculosis Information Management System (TIMS), 2004-2009 (January 2010)

*"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 population estimates from the Nevada State Demographer. Interim 2008 Population Estimates were used to calculate 2009 rates. The 2007 and 2008 Interim Population Estimates are based on the 2007 and 2008 Total Population Estimates provided in March 2008 and 2009, respectively and 2005 Population Estimate Breakdowns. They were updated in July 2008 and 2009 by the Nevada State Health Division, Bureau of Health Statistics, Planning, and Emergency Response.

For more information, please contact the Nevada State Health Division, Tuberculosis Program
Susanne Paulson, 775.684.5982 or spaulson@health.nv.gov

Appendix A

Nevada State Public Health Laboratory TB Activities from January 1, 2009 through December 31, 2009

Description of the Laboratory Work Load	**YEAR TOTAL**
1. Total number of clinical specimens process and cultured. Not including isolates referred from other laboratories.	1662
2. Number of **Individual patients** for whom a clinical specimen (e.g. sputum, CSF, Biopsy) was processed and TB culture was inoculated.	1180
2a. Of these, report the number of **individual patients** for whom at least one culture was positive for *M. tuberculosis* complex.	160
3. Number **individual patients** for whom a reference isolate was received by the public health laboratory to rule out or confirm the identification of *M. tuberculosis* complex.	141
3a. Of these, report the number of **individual patients** for whom at least one reference isolate identified as *M. tuberculosis* complex.	12
4. Number of **individual patients** for whom drug susceptibility tests (DST) were performed for first line-drugs and/or whose isolates were referred to other laboratories for DST if first-line DST testing is not done in-house.	91
5. Number of **individual patients** from your jurisdiction for whom a clinical specimen (e.g. sputum, CSF, etc.) was tested directly with a nucleic acid amplification test (NAAT) or another rapid test or another rapid test. (This includes testing performed i	124
5a. Of these, report the number of **individual patients** for whom a NAAT or other rapid detection test was positive for *M. tuberculosis* complex.	40
6. Number of individual patients for whom the laboratory referred an isolate for *M. tuberculosis* complex for genotyping	77

Turn- Around- Time Data	**YEAR TOTAL**
1. Promote rapid delivery of specimens. (TAT goal: Specimens should be received in the laboratory within 24 hours of specimen collection). Report the percent of specimens received with 1, 2, and 3 calendar days	
1a. % of specimens received within 1 calendar day	37%
1b. % of specimens received within 2 calendar days	NA
1c. % of specimens received within 3 calendar days	NA
2. Use fluorescent acid-fast staining and promptly transmit results by phone, FAX, or electronically. (TAT goal: Report acid-fast microscopy results within 24 hours of specimen receipt.)	
2a. % of specimens received within 1 calendar day	100%
2b. % of specimens received within 2 calendar days	NA
2c. % of specimens received within 3 calendar days	NA
3. Identify growth as acid-fast and use rapid methods to identify isolates as *M. tuberculosis* as soon as possible and report results promptly. (TAT goal: 14-21 calendar days from receipt.) Report percent *M. tuberculosis* complex isolates identified from in	
3a. % of *M. tuberculosis* isolated identified within 21 calendar days	94%
4. Determine the susceptibilities (DST) of initial *M. Tuberculosis* complex isolated to first-line drugs in a rapid culture system and report results promptly. (TAT goal: 21-28 calendar days from receipt of specimen) Report the percent of Rifampin suscepti	
4a. % of 1st line DST results reported within 28 calendar days	92%
5. Report the number of individual patients for whom laboratory confirmation of tuberculosis was provided within 48 hours of clinical specimen (e.g. sputum, CSF, etc.) receipt (i.e., use of NAAT or direct HPLC)	40

The Nevada State Public Health Laboratories Description of Activities:

All specimens are processed the day of receipt, including weekends. All AFB smears are read and reported within 24 hours of processing. MTBC PCR is performed Monday, Wednesday and Friday on first-time positive AFB smear samples. Processed specimens are inoculated to MGIT broth and 7H11 selective agar. Both broth and solid culture media are incubated for 6 weeks. Positive MGIT broths are stained and Accuprobes are performed Tuesdays and Fridays to identify isolated AFB. All results are called and faxed to the submitting clinic or laboratory, the local county TB health department and the NSHD Office of Epidemiology.

For initial processing of specimens for isolation of *M. tuberculosis* the NSPHL utilizes: the Bactec 960, Auramine-Rhodamine fluorescent stain, Roche Amplicor MTBC PCR, Genprobe Accuprobes for identification of MTBC, MAIC, *M gordonae* and *M. kansasii.* Once organisms are identified as belonging to the MTBC their identification is biochemically confirmed utilizing: 68°C catalase test, niacin production and nitrate reduction. All new *M. tuberculosis* isolates receive a susceptibility panel which includes 2 dilutions of Streptomycin and INH, and single concentrations of Rifampin, Ethambutol and PZA. Isolates resistant to INH and Rifampin are automatically tested by conventional method of Agar Proportion versus Ethionamide, Kanamycin, Ciprofloxacin, Ofloxacin and PAS to determine XDR-TB. If additional testing is required or requested, the isolate is sent to the National Jewish TB Department in Denver, CO, or the CDC in Atlanta, GA. All patients who are cultured positive for *M. tuberculosis* have their initial isolate sent to Richmond, California for TB genotyping.
Please refer to the accompanying chart (page 25) to view the baseline activities regarding Healthy People 2010.

Unlike a hospital laboratory where collection of specimens occurs on site, the NSPHL receives specimens from multiple locations via mail or courier system. Most locations are shipping samples each day of collection. An exception is the Southern Nevada Health District TB Clinic which the majority of samples are derived. Samples are batched and shipped twice per week. Although SNHD is are aware that this manner of batching samples is not the most effective way to quickly diagnose patients, it is the most fiscally efficient. The NSPHL also receives positive samples that have been processed at various hospitals and commercial laboratories throughout the State; this situation also increases the laboratory's turn-around-time from time of collection of sample to receipt by NSPHL.

The NSPHL validated the QuantiFERON TB test for diagnosis of active and latent *M. tuberculosis* infections. The test has been available since August 13, 2007 and as of June 2008 the QuantiFERON In-Tube test has been validated and is also available. The primary obstacle to increasing the utilization of this screening test remains the collection and transportation of samples to the lab and associated costs. The NSPHD will be working with the FaR Program to brainstorm ideas for remote locations to be able to take advantage of this test.

The PCR testing algorithm proposed by the CDC suggests performing a PCR test on the first specimen of every suspected case of TB, skipping the AFB smear of that specimen, and then going straight to culture, if the PCR result was positive than a smear would be done on that

specimen prior to culture. The remaining two specimens would be processed the same as in the past. The NSPHL is not currently planning to switch to this specimen processing schedule as the cost for increasing the number of PCR tests performed cannot be supported at this time, and the Roche Amplicor MTB PCR kit is not approved for performance on AFB smear negative samples. The NSPHL currently performs MTB PCR testing only on new smear positive cases every Monday, Wednesday and Friday. However, Roche will be discontinuing manufacture of their PCR test and NSPHL will be switching to the Genprobe MTD test in July, 2010, and the algorithm will be revisited then.

The NSPHL is currently running a parallel study with the Starlims LIS. If the parallel study is successful, NSPHL should be able to comply with this objective.

Appendix A

Nevada Tuberculosis Program – Evaluation Plan 2010-2014

Nevada State Health Division
Tuberculosis Program

April, 2010

I. INTRODUCTION

In Nevada, data from the Nevada State Health Divisions TB Program shows that Nevada has on average 105 cases of Tuberculosis per year, with a case rate of 3.9 cases per 100,000 population in 2009, which is an increase in rate from 3.7 (data is published in Nevada's 2005-2009 Tuberculosis Fast Facts http://www.health.nv.gov/PDFs/HIV_STD_TB/TBFastFacts09.pdf). Nevada is ranked 16th in the Nation and is considered a medium incidence state.

Nevada is unique in the demographics of being the 35th largest state by population, yet the 7th largest in size and land mass.[1] Nevada's population is concentrated in three urban areas: Clark County in the south, and Carson City and Washoe Counties in the north. These three areas account for 89.3% of the state's population. The remainder of the population is divided among Nevada's 14 rural and frontier counties which cover 96,000 square miles. Access to these communities is challenging and time-consuming.

Within Nevada, an estimated 86 percent of the TB cases in 2009 were residing in Clark County and the remaining 14 percent spread throughout the other Nevada counties. The combination of addressing the varying needs of the large urban areas along with the sparsely populated rural communities of Nevada makes providing required TB services to these diverse populations somewhat complicated.

Nevada has a strong collaborative Tuberculosis Control support network which attends to the unique facets every case of TB brings. The program staff work hard to address the specific needs of the individual communities they serve; by customizing directly observed therapy (DOT) plans to fit the needs of each patient, as well as, providing incentives and/or enablers to persons who may have not been capable of completing treatment regimens without them.

A list of the individuals (and the number of full time equivalent employees (FTEs)) and the programs that support TB functions in Nevada are detailed below. These individuals and programs are the core TB infrastructure for the State of Nevada and will be the source for case studies and narrating their experiences acquiring compliance with prescribed treatment regimens.

[1] http://nsla.nevadaculture.org

Nevada State Health Division, Carson City:

FTE, State TB Controller located at the NSHD in Carson City

Clark County, Tuberculosis Clinic:

FTE TB Program Manager
FTE TB Clinic Manager
FTE TB Program Coordinator
FTE TB Registered Nurse Case Manager
FTE Disease Investigation Specialist (DIS)
FTE Licensed Practical Nurse (LPN)
Clerical Support Staff

Washoe County, Tuberculosis Clinic:

FTE TB Program Manager
FTE TB Program Coordinator
FTE TB Clinic Case Managers PHN's

Carson City and FaR (Frontier and Rural), Tuberculosis Clinics:

Staff member on an as needed basis to act as the TB case manager for their jurisdiction. There are 15 satellite community health clinics with varying staffing schedules across the frontier and rural areas of Nevada

State Public Health Laboratory:

FTE microbiologists committed to TB
FTE Laboratory Manager

II. OVERVIEW OF EVALUIATION PLAN

Justification for Evaluation

Non-adherence to anti-tuberculosis treatment is the most common cause of treatment failure, relapse and the emergence of drug resistance.[2] The current NRS (424A) state law (?) state that the use of isolation of persons with infectious TB is appropriate until the disease has been rendered non-communicable, but not until the patient is cured. However, the current infectious disease isolation and quarantine regulations allow law enforcement to refuse to detain these individuals for feasibility reasons. Some of the commonly cited reasons include 1) not complying with TB treatment is not a real crime, 2) lack of capacity to detain patients in a negative air flow cell, and 3) lack of capacity to comply with the regulations requiring the provision of cell phone access to patients while they are in isolation.

To protect the health of the public, the TB program in Nevada is seeking the implementation and the enforcement of laws, regulations and policies to isolate and treat persons who have infectious

[2] American Thoracic Society, Centers for Disease Control and Prevention, Infectious Diseases Society of America. Treatment of tuberculosis. MMWR 2003; 52 (RR–11).

TB [and] detain persons who though not infectious, are unwilling or unable to complete treatment and are at risk of becoming infectious again and acquiring and spreading drug resistance forms of TB.[3]

GOAL

There are two goals to this evaluation activity: 1) to provide the evidence where the use of law could have increased treatment compliance and prevented adverse effect of non-adherence to treatment, and 2) to improve the collaboration between the TB program and law enforcement agencies, allow the members of the law enforcement agencies to understand their role in improving the case management of tuberculosis patients and protecting the health of the public.

METHOD

This evaluation will assess the current application (or non-application) of legal procedures and evaluate their effectiveness (or missed opportunity) in the case management of TB patients who are non-compliance with the treatment in Nevada.

The following activities will be completed as a part of the evaluation to ensure that all stakeholders are engaged and that findings are used to enhance collaboration with law enforcement agencies: 1) establish a core group of individuals to review and guide data analysis; 2) conduct a case review of all TB cases in Nevada during the last five years that have requested legal intervention 3) develop a presentable report showcasing a broad range of the findings; and 4) present data findings to key stakeholders (i.e., law enforcement agency and policy makers).

A detail action plan for the evaluation is presented in the logic model below in Figure 1. Key members responsible for this evaluation are listed in Table 1,

Resource available for evaluation is limited. Evaluation team members are able to devote only a limited amount of time to the evaluation. However, several of the evaluation team members will work together and meet regularly.

It is anticipated that within the next 1-3 years the evaluation and compilation of a TB case studies which represent and illustrate the troubles that have been encountered with non-compliant TB patients will be assembled and presented to State and Local Health Boards of Health and the Legislative Health Council committee. Once the evaluation team has clearly documented and presented the problem and the stakeholders have been identified and engaged, all entities will meet regularly to formulate proposals and options for improvements that all agencies will be able to support. In 3-5 years these proposals will be presented to State Legislature for approval and implementation. Outcome evaluations will begin upon implementation.

[3] E. N. Pritchett,* D. Schlossberg,* G. Lovett-Glenn,* J. Beck,*† B. Dickman. Legal intervention for non-adherent patients in the treatment of tuberculosis. INT J TUBERC LUNG DIS 13(3):323–327 © 2009 The Union

Figure 1

Program: Nevada State Health Division Tuberculosis Logic Model
Goal: Improve the ability for the TB Program to manage cases by working collaboratively with law enforcement agencies.

Inputs	Outputs		Outcomes -- Impact		
	Activities	*Effect*	*Short*	*Medium*	*Long*
In order to accomplish our goals will need the following resources Capacity and Infrastructure 1. Staff ➢ Recommendations for change in NRS and current laws from state and local TB resources ➢ Health care professionals highly trained and/or experienced in TB case management and enforcement of TB compliance. 2. Time ➢ Dedicated and committed team members which include commitment from all levels of law enforcement. 3. Functional data systems ➢ Collect data to create accurate and relevant case studies to support proposed legislation. 4. Partnerships ➢ Other state programs ➢ Health and legal professional at the State and Local level	Accomplishing the following activities will result in the following measurable deliverables Organize clinical, epidemiological and operational data 1. Establish a core group of individuals to recommend research and propose changes in laws to improve compliance of diagnosed TB patients with prescribed drug regimen 2. Review cases and choose a diverse representation to present in the report 3. Develop report to summarize program information 4. Choose method and schedule for presenting findings to NSHD administration, state health boards, state and local governmental bodies as well as state legislature	Accomplishing these activities will result in the following evidence of progress Tuberculosis data and statistics will be utilized to guide TB program activities 1. Increase TB law enforcement capacity ➢Infrastructures will be expanded ➢Engaging all agencies in the process will reinforce the importance of a unified team supporting public health and safety. 2. Findings will be presented to appropriate local, state, law enforcement and governmental agencies. 3. Revision of existing laws to include specific protocol for the enforcement and consequences of those on TB drug therapy regime will increase cure rate, reduce MDR cases and reduce further spread to others.	We expect the following measurable changes Appropriate changes to existing TB NRS and/or NAC will be made based on data and case study evidence submitted for each community 1. Better utilization of recourses to enhance diagnosis, treatment and field investigation protocols 2. Increase the number of patients who complete TB treatment. 3. Provide cost analysis of effectiveness of new laws through fewer new cases and repeat cases due to patients completing drug regimen. 4. Acquire the capacity to detain infectious persons for extended periods of time	We expect the following measurable changes within the next one to three years Lessons learned will become lessons shared and where applicable implement change, ultimately improving TB Programs statewide 1. Prevention and control measures will be enhanced to assist diagnosed patients complete prescribed drug regimen 2. Tailor treatment plans to address both medical and social needs of persons infected with TB. ➢More effective prevention 3. Provide accurate information statewide to show evidence of improved compliance, reduction in MDR cases and reduction in spread of TB. In addition, show cost effectiveness of new laws through fewer new cases and repeat cases due to patients completing drug regimen on time	We expect the following impacts/trends within the next three to seven years or more Improved detection, diagnosis, treatment and cure of Tuberculosis in Nevada 1. Reduce TB transmission 2. Reduce the prevalence of LTBI 3. Reduce TB morbidity and mortality 4. Improved quality of care 5. Data-driven best interventions and improvements are implemented and disseminated 6. Efficient use of resources 7. Show cost of implemented changes.

Assumptions

➢ Collaborative agencies want to protect public health and safety.
➢Acquiring enhanced capacity and updating TB regulations will decrease TB case rate in Nevada.

External Factors

➢Participation from TB stakeholders is required
➢Nevada is experiencing increases in total population, as well as foreign born, therefore increases in TB may be expected

Table 1. Roles and Responsibilities of the Evaluation Team Members		
Individual	**Title or Role**	**Responsibilities**
Dr. Tracey Green, Richard Whitley, Marla McDade-Williams Nevada State Health Division	State Health Officer, Administrator, Deputy Administrator	Provide support & guidance with data analysis, assist with dissemination of findings. Review and recommend proposed changes to existing laws for enforcement of TB patient compliance Recommend and present proposals, based on the data provided, to law enforcement agencies, State Boards of Health and State Legislative Bodies. Support TB program staff in coordination and education of TB patients, the communities and law enforcement of new and existing laws.
Susanne Paulson, Nevada State Health Division	Nevada TB Controller	Oversee evaluation activities Recommend, based on case studies, current data and best practices changes which will increase compliance with completing full medication regimens for TB patients in Nevada Provide historical information to NSHD Administrator, State Health Officer and Bureau Chief of with extensive TB program experience. Such information and experience supports proposed changes in legislative law. Coordinate meetings for developed advisory group as needed. Provide support at presentations to law enforcement, State Boards of Health and Legislative Bodies.
Diane Freedman Washoe County Health District	TB Program Coordinator	Assume role of TB Pen focal point. Assist with drafting and organizing data for proposal of legal revisions: based on case studies, interviews and current data to be presented to law enforcement agencies, State Boards of Health and State Legislature. Coordinate County TB staff to participate in statewide evaluation plan and cost analysis activities.
Representative from each of the core jurisdictions	To Be Determined	Provide data from their respective jurisdictions of examples of cases studies which show prior or are current non-compliance with drug treatment regimes. Analyze areas for improvement Propose to NSHD TB Program changes to be proposed to law enforcement, State Boards of Health and Legislative bodies.
Luana Ritch	PHP Program Chief	Review and recommend changes to existing laws for enforcement of TB patient compliance Assist with edit and revision of proposals Educate and guide regarding protocols and deadlines Support TB program staff in the coordination and education of TB patients, Nevada's communities and law enforcement regarding new and existing laws

Table 2. Stakeholder Assessment and Engagement Plan			
Stakeholder Category	Interest or Perspective	Role in the Evaluation	How and When to Engage
Persons involved in evaluation plan activities and advisory group			
Evaluation Team Members	Opportunity to address issues of concern May be too large of a commitment	Identify and prioritize goals. Coordinate stakeholders as necessary Develop and recommend revisions to current laws for TB patients. Develop and recommend new laws to improve compliance and minimize spread of TB. Recommendation for possible solutions to housing issues for detaining individuals diagnosed with active TB when necessary.	Meetings Direct roles in conducting evaluation
Persons served or affected by the evaluation plan			
Law Enforcement District Attorneys Local Police Sheriff's Department	Safety of law enforcement personnel. Time and additional costs associated with education of new or existing laws. Additional time to enforce new or existing laws. Housing of incarcerated individuals who are diagnosed with TB.	Recommend revision of current laws. Recommend new laws which will be feasible for officers, district attorney and courts to enforce.	Key individuals to participate at each stage of evaluation plan development.
Healthcare professionals and Healthcare facilities Medical Doctors HCQC	Recommendations may affect requirements for compliance. Responsible for surveying health facility compliance. Require action to enforce.	Advise on feasibility and value of enforcement of new or existing laws. Recommend, based on current data and laws ways to increase compliance of patients.	Invite members to participate in the development of recommendations for new laws and enforcement of existing laws.
Public Health Program staff Public Health Preparedness Program TB Program Staff	May be affected by implementation of new protocols May be requested to assist with implementations Will improve ability to perform required tasks	Asked to recommend any modifications to existing laws and proposal of new laws. Determine success or failure of changes	Prior to, during and post implementation of any new laws affecting program enforcement.
Intended users of evaluation findings			
TB stakeholders Law Enforcement Medical Professionals NSHD TB Program State Government TB Patients	Improved compliance with medication regimens Reduced incidence of new TB cases and MDR cases Inclusion of and improved communication between key individuals and agencies Establish sustainable relationships between jurisdictions.	Identify and communicate areas in need of improvement Commit to sharing lessons learned Implement and maintain modified practices (if/when needed) Determine success or failure of changes to protocols and procedures	Prior to, during and post implementation of any changes affecting program activities

County Health Commissioners	Concern over impact to general funds to implement new laws and enforce existing laws.	Providing administrative/ funding context Determining cost analysis to measure effectiveness, over time of patients completing drug regimen.	Fiscal evaluation meetings
Boards of Health and other Community Agencies	Improve compliance with drug regimen of existing TB patients to reduce further infection and cases of MDR.	Dissemination of findings	Inform of findings

III. Focus of the Evaluation

Evaluation QUESTIONS:

1. How many TB patients (in NV) who did not complete treatment are due to non-compliance?
2. What were the signs of non-compliance?
3. How were these cases managed?
4. Were legislative policies used to increase patient compliance? How? Why or why not?
5. How would the case management be improved and the outcomes (i.e., not completing treatment, developing drug-resistant TB, and continues TB transmission) be averted if isolation and treatment compliance laws have been enforced?
6. What are some of the proposed regulatory solutions?

IV. DATA COLLECTION, ANALYSIS and INTERPRETATION

A standard form will be developed and distributed to local health departments so that they may provide a brief summary of cases for review. The evaluation team will review and discuss these cases to determine which cases will be resubmitted using a more detailed form.

A more detailed data collection form to evaluate the cases which have required legal services will be developed and implemented. Quantitative methods of analysis will be used to review outcomes, such as: level of compliance of TB patients, number of successful collaborative efforts between law enforcement and the TB Program, improved rates of completion, removing obstacles when identified, improving team building capacity and communication among individuals, agencies and law enforcement. After a comprehensive data collection process is complete, a sampling from this collection process will be selected to best represent areas where current NRS and current law enforcement practices have not benefited TB case management in Nevada.

Stakeholders including State and County administrators, law enforcement agencies, program managers/staff, Local Health Authorities and medical staff will be invited to participate in follow-up meetings to interpret the findings. Stakeholders and those involved in program operations will be given an opportunity to analyze the findings and make recommendations accordingly.

Combined analysis of data from the quantitative data gathered as a result of the case study review, as well as, the qualitative data gathered from the key-stakeholders work group will be reviewed and a comprehensive proposal will be developed.

Based on recommendations from the advisory group and those impacted, new and or revised TB regulations will be proposed to the Nevada State Legislature. The only aspects of the evaluation plan that can be examined at this time are: historical TB case management testimony identifying the need to propose changes in NRS and relevant laws.

V. ENSURE USE AND SHARE LESSONS LEARNED: REPORT & DISSEMINATION

A comprehensive evaluation report summarizing TB case management and the collaborative efforts with law enforcement will be drafted. The findings will help guide the agencies involved in TB control prevention to focus on areas that are most crucial for effective enhancements. The health care professional will use the finding to improve the delivery of case management services in their medical practices to better serve and protect their community. County health department administrators will use the findings to determine the future funding distribution for their programs. The community will use the findings to assist with navigating public health services. Findings from this evaluation will also be used to guide and direct future evaluation projects for Nevada's TB program.

Evaluation findings will be disseminated via various channels. Presentations will be given at State and Local Health Authorities. A short report will be drafted and a presentation offered for the State and County health commissioners.

ADDENDUM

To determine whether this evaluation has been implemented as planned, we're also evaluating our evaluation effort. Table 3 highlights the key evaluation questions and indicators established for this process, which are derived from the logic model depicting the collaborative evaluation efforts with the law enforcement agencies (Figure 1). Below is a list of questions that we will be assessing for this component.

❖Has data been analyzed and do case studies support the need for an advisory committee?
❖Has the group provided data and relevant case studies to support the need for stronger legislation to enforce compliance with TB patient's case management?
❖Has an advisory group been formed and do they meet regularly?
❖Does the advisory group represent all relevant individuals and agencies to be involved and impacted by the new proposed legislations?
❖Has buy-in been gained by law enforcement agencies and officials for the new proposed legislation?
❖Has a strong proposal been developed utilizing input from key individuals and agencies which support the goal of the evaluation plan?

❖Will the revision be implemented?

To determine if the plan is meeting its goal:
❖Was a strong supporting proposal developed and presented to law enforcement, state health boards as well as local and state governments?
❖Are the new laws effective in improving compliance with prescribed drug regimens? Is there a decrease in MDR cases? Is there a decrease in the number of new cases?
❖Have the new laws proven to be cost effective?

Table 3. Indicators and Program Benchmark for Evaluation Questions

Evaluation Question	Process and Outcome Indicators	Program Benchmark
1. Has the evaluation team organized a presentation?	Establish roles and responsibilities. Meet deadlines.	Each jurisdiction will be responsible for submitting and participating in case review and presentation
2. Was the TB case report presented at as many possible Health Authority meetings?	Establish a calendar meetings taking place statewide. Petition to be on the agenda of as many as schedules will permit.	Familiarize all Health Administrators with the report and ask them to present it at least 3 times each.
3. Has a TB advisory group been formed and do they meet regularly?	Recruit members Establish regular meetings	A minimum of five stakeholders agree to participate on a regular basis and meetings are scheduled and attended.
4. Has the group gathered relevant data to support the new proposed legislation?	Gather relevant case studies. Prove cost effective measures over time after passing of proposed legislation and implementation of new laws.	The group produced a case studies report specific to supporting the need for new legislation.
5. Have any new laws or changes in NRS been passed and implemented?	Revise proposals if needed to pass new proposals if needed. Implement approved changes in laws and NRS.	Changes in laws are incorporated into standard protocols and procedures for TB program as well as law enforcement agencies.
6. Are the new laws effective (did they achieve their intended purpose)?	Survey targeted areas as to the effectiveness of the change Share lessons learned	Assess, document and disseminate lessons learned and/or tools developed. Determine cost effectiveness of passage and implementation of new laws.

FINANCIAL STATUS REPORT

(Long Form)

(Follow instructions on the back)

1. Federal Agency and Organizational Element to which Report is Submitted: DHHS, PHS, CENTERS FOR DISEASE CONTROL AND	2. Federal Grant or Other Identifying Number Assigned By Federal Agency: 5U52PS907855-18	OMB Approval No. 0348-0039	Page 1	of 1 pages

3. Recipient Organization (Name and complete address, including ZIP code)

NEVADA STATE HEALTH DIVISION
4150 TECHNOLOGY WAY, STE 300
CARSON CITY NV 89706-7209

4a. Employer Identification Number	4b. Recipient Account Number or Identifying Number	5. Final Report	6. Basis	Modified
88-6000032		[X] Yes [ ] No	[ ] Cash	[X] Accrual

7. Funding/Grant Period (See instructions) From: (Month, Day, Year)	To: (Month, Day, Year)	8. Period Covered by this Report From: (Month, Day, Year)	To: (Month, Day, Year)
01/01/2005	12/31/2009	01/01/2009	12/31/2009

10. Transactions:	I Previously Reported	II This Period	III Cumulative
a. Total outlays			592,878
b. Refunds, rebates, etc.			0
c. Program income used in accordance with the deduction alternative			0
d. Net outlays (Line a, less the sum of Lines b and c)			592,878
Recipient's share of net outlays, consisting of:			
e. Third party (in-kind) contributions			0
f. Other Federal awards authorized to be used to match this award			0
g. Program income used in accordance with the matching or cost sharing alternative			0
h. All other recipient outlays not shown on Lines e, f or g			0
i. Total recipient share of net outlays (Sum of Lines e, f, g and h)			0
j. Federal share of net outlays (Line d less Line i)			592,878
k. Total unliquidated obligations			0
l. Recipient's share of unliquidated obligations			0
m. Federal share of unliquidated obligations			0
n. Total federal share (sum of lines j and m)			592,878
o. Total federal funds authorized for this funding period			592,878
p. Unobligated balance of federal funds (Line o minus line n)			0
Program Income, consisting of:			
q. Disbursed program income shown on Lines c and/or g above			0
r. Disbursed program income using the addition alternative			0
s. Undisbursed program income			0
t. Total program income realized (Sum of lines q, r and s)			0

11. Indirect Expense	a. Type of Rate (Place "X" in appropriate box)	b. Rate	c. Base	d. Total Amount	e. Federal Share
	[X] Provisional [ ] Predetermined [ ] Final [ ] Fixed	10.4%	41,533	4,320	4,320

12. Remarks: Attach any explanations deemed necessary or information required by Federal sponsoring Agency in compliance with governing legislation:

13. Certification: I certify to the best of my knowledge and belief that this report is correct and complete and that all outlays and unliquidated obligations are for the purposes set forth in the award documents.

Typed or Printed Name and Title	Telephone (Area code, number and extension)
Phil Weyrick, Administrative Services Officer IV	(775) 684-4200
Signature of Authorized Certifying Official	Date Report Submitted
	02/02/2010

Standard Form 269 (Rev. 7-97)
Prescribed by OMB Circular A-102