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TO: Local and District Health Directors
TB Control Nurses

FROM: Carol Dukes Hamilton, MD
Medical Director

DATE: March 31, 2004

SUBJECT: 2003 Annual Tuberculosis Statistical Summary

This report is being sent directly to the TB Control Nurses in recognition of their hard work and dedication to eliminating TB in North Carolina. This summary was prepared using data each county submits for TB reporting on RVCT forms. We ask that the report is shared with the Health Director and staff. Beginning with this report we are presenting some of the data in a different format and trust the data will be useful to you in evaluating your local TB program and for planning purposes. The tables reflect data which we use to report our annual progress toward TB elimination to CDC which is required as a condition for receiving federal cooperative agreement funds. We solicit your feedback on the usefulness of these data and how we can make this product a better tool to serve you.

Our review of the data yielded the following observations: For the period 1999 through 2003, TB incidence in North Carolina has decreased 23.4%; down from 488 to 374 cases. Attachment 1 provides TB incidence by county.

The case rate for 2003 was 4.6 per 100,000 population. That is about three times greater than the ***Healthy People 2000*** goal and 45 times greater than the ***Healthy People 2010*** goal of 1 per 1,000,000. The North Carolina TB case rate is 10% lower than the U.S. TB case rate of 5.1 per 100,000 population. The following points reflect changes in North Carolina TB cases between 2002 and 2003.

- With regard to the Male and Female populations, there was a significant reduction in incidence: 13.7% for Males and 14.1% for Females.

- There was a 68.2% increase in incidence for the White population; case rate 1.8 per 100,000.

- There was an 18.1% decrease in incidence for the Black or African American population; case rate 2.3 per 100,000.

- There was a 25% decrease in incidence for the Asian and Pacific Islander population; case rate 0.4 per 100,000. (Note that beginning with 2003, the Asian population and the Hawaiian or Other Pacific Islander population have been designated as discrete groups; and another population designation, Multi-racial, has been added.)

- There was a 75% increase in incidence for the American Indian and Alaska Native population; case rate 0.01 per 100,000.
- The case rate for the Hawaiian or Other Pacific Islander population was 0.06 per 100,000.
- The case rate for the Multi-Racial population was 0.04 per 100,000.
- There was a 10.5% decrease in incidence for the Hispanic population; case rate 0.8 per 100,000.
- There was a 14.8% decrease in incidence for the non-Hispanic population; case rate 3.8 per 100,000.
- For children 0-14, there was a 46.9% decrease in incidence.
- For age 15-24, there was a 17.1% decrease in incidence.
- For age 25-44, there was a 15.2% decrease in incidence.
- For age 45-64, there was a 9.1% increase in incidence.
- For age $\geq$65, there was 24.5% decrease in incidence.
- There was a decline of 13% in incidence for U.S.-born cases; case rate 3.3 per 100,000.
- There was a 17.3% decline in foreign-born cases; case rate 1.4 per 100,000.

For the period reflected in Table 1, 1999-2003, the following rates were calculated:

- In the Male population, there was a 25.5% decrease in incidence; average case rate 3.4 per 100,000.
- In the Female population, there was a 19.5% decrease in incidence; average case rate 1.9 per 100,000.
- For the White population, there was a 32.1% increase in incidence; average case rate 1.4 per 100,000.
- For the Black or African American population, there was a 31.5% decrease in incidence; average case rate 2.8 per 100,000. While North Carolina experienced a decrease in incidence for this population, it remains a disparity as evidenced by the 2-fold higher case rate compared to the White population and 3-fold higher case rate compared to the Hispanic population..
- For the Asian and Hawaiian or Pacific Islander populations, there was a 23.1% decrease in incidence; average case rate 0.4 per 100,000.
- For the American Indian and Alaska Native population, there was a 133% increase; average case rate 0.04 per 100,000.
- For the Hispanic population, there was a 6.3% increase in incidence; average case rate 0.9 per 100,000.
- For the non-Hispanic population there was a 28.1% decrease in incidence; average case rate 4.4 per 100,000.
- For children aged 0-14, there was a 15% decrease in incidence; average case rate 0.2 per 100,000.
- For ages 15-24, there was a 43% decrease in incidence; average case rate 0.5 per 100,000.

- For ages 25-44, there was a 22.9% decrease in incidence; average case rate 1.8 per 100,000.
- For ages 45-64, there was a 13% decrease in incidence; average case rate 1.5 per 100,000.
- For ages ≥65, there was a 29.2% decrease in incidence; average case rate 1.3 per 100,000.
- For U.S.-born cases, there was a 32.1% decrease in incidence; average case rate 3.9 per 100,000.
- For foreign-born, there was a 7.8% increase in incidence; average case rate 1.4 per 100,000.

(NOTE: All rates were calculated using the 2000 census data for the State of North Carolina as the denominator. Data reported to the NCDPH TB Registry through February 6, 2004 were used for this report.)

These observations were derived from the data presented in Table 1. Table 2 shows the national case rate and the case rate and rank for North Carolina. (The difference [0.2] between the case rate previously mentioned for 2003 and that depicted in Table 2 relates to the denominator used for the calculation. For consistency, we intend to use the 2000 census as the denominator until the next census is published.) Following that table, we present data about seven major risk factors which contribute to those with latent TB infection progressing to active TB disease. The final table (Table 17) presents the distribution of cases by anatomical site.

Table 1	REPORTED TB CASES FOR NORTH CAROLINA 1999-2003**									
	1999		2000		2001		2002		2003	
VARIABLES	#	%	#	%	#	%	#	%	#	%
TOTAL CASES	488		447		397		434		374	
SEX										
Male	314	64	302	68	257	65	271	62	234	63
Female	174	36	145	32	140	35	163	38	140	37
RACE										
White	112	23	120	27	93	23	88	20	148	40
Blac/Afr-Am*	270	55	235	53	196	49	226	52	185	49
Asian/Pac Isl	39	8	24	5	29	7	40	9		
Asian*	*		*		*		*		25	7
Am.In./AK Nat.	3	1	1	<1	2	1	4	1	7	2
HI/PacIsl*	*		*		*		*		5	1
Multi-race*	*		*		*		*		3	1
Unknown	0	0	0	0	0	0	0	0	0	0
ETHNICITY										
Hispanic	64	13	67	15	77	19	76	18	68	18
Non-Hispanic	424	87	380	85	320	81	358	82	305	82
Unknown	0	0	0	0	0	0	0	0	0	0
AGE										
0-14	20	4	18	4	11	3	32	8	17	5
15-24	51	10	46	10	37	9	35	8	29	7
25-44	166	34	160	36	133	34	151	35	128	34
45-64	138	28	110	25	113	28	110	25	120	32
≥65	113	23	113	25	103	26	106	24	80	22
Unknown	0	0	0	0	0	0	0	0	0	0
SITE OF TB										
Pulmonary	375	77	331	74	286	72	314	72	271	72
Extrapulmonary	79	16	83	19	79	20	82	19	73	20
Both	34	7	33	7	32	8	38	9	30	8
COUNTRY OF ORIGIN										
United States	386	79	335	75	271	68	301	69	262	70
Foreign	102	21	112	25	125	31	133	31	111	29
Unknown	0	0	0	0	1	0	0	0	0	0

***CDC change in nomenclature for racial categories beginning with 2003.**
****Data for 2003 are incomplete. Data source: TIMS.**

Table 2	Case Rate and Rank 1998-2003*		
	Rates		
Year	USA	North Carolina	Rank
1998	7.2	6.6	17
1999	6.4	6.4	17
2000	6.4	5.5	16
2001	5.6	4.8	20
2002	5.2	5.2	15
2003	5.1	4.4	*21

***CDC Provisional data.**

Correctional Facilities: There was an 85.7% increase in cases reported from correctional settings between 2002 and 2003 (Tables 3 and 4).

Table 3	Resident of Correctional Facility at Time of Diagnosis 1998-2003*					
Year	1998	1999	2000	2001	2002	2003
Cases	8	11	9	5	7	13
Percent	2	2	2	1	2	4

***Data source TIMS Surveillance Demographics Report.**

Table 4	Type of Correctional Facility 1998-2003*					
Facility	1998	1999	2000	2001	2002	2003
Federal Prison	0	0	1	0	0	2
Local Jail	5	2	4	3	5	6
Other	0	0	2	0	0	1
State Prison	3	8	2	1	2	4

***Data source: CaroTIMS.**

Long-Term Care Facilities: There was a 22.3% increase in cases for this risk factor from 2002 to 2003. The trend is shown in Tables 5 and 6.

Table 5	Resident of Long-Term Care Facility at Time of Diagnosis 1998-2003*					
Year	1998	1999	2000	2001	2002	2003
Cases	18	24	15	21	11	14
Percent	4	5	3	5	3	4

***Data source TIMS Surveillance Demographics Report.**

Table 6	Type of Long Term Care Facility 1998-2003*					
Facility	1998	1999	2000	2001	2002	2003
Alcohol/Drug Rehab	1	4	2	1	0	2
Hospital Based Facility	0	0	1	0	1	1
Mental Residence	0	2	1	0	0	0
Nursing Home	11	11	5	10	9	10
Other	2	3	1	5	0	0
Residential Facility	3	2	0	5	1	1

***Data source: CaroTIMS.**

Substance Use: More cases reported excess alcohol use (21%) than either non-injection (14%) or injection drug use (2%). There was an 8.8% decrease from 2002 to 2003 in the number of cases in which excess alcohol use was reported. There was a 1% increase in the number of cases reporting non-injection drug use. There was a 14.2% increase in cases where injection drug use was reported. Tables 7, 8 and 9 show the trends.

Table 7	Excess Alcohol Use 1998-2003*					
Year	1998	1999	2000	2001	2002	2003
Cases	116	129	102	75	87	80
Percent	23	26	23	19	20	21

***Data source TIMS Surveillance Demographics Report.**

Table 8	Non-Injecting Drug Use 1998-2003*					
Year	1998	1999	2000	2001	2002	2003
Cases	37	50	47	35	56	54
Percent	7	10	11	9	13	14

*Data source TIMS Surveillance Demographics Report.

Table 9	Injecting Drug Use 1998-2003*					
Year	1998	1999	2000	2001	2002	2003
Cases	6	2	6	6	7	8
Percent	1	<1	1	2	2	2

*Data source TIMS Surveillance Demographics Report.

Foreign-Born: For 2003, there was a 16.5% decrease in the number of cases reported among the foreign-born. For the period 1998-2003, inclusive, there was a 54.2% increase. While North Carolina communities have made progress in identifying and treating cases of TB among the foreign-born, this factor continues to be a challenge to the TB elimination effort in North Carolina. For the past five years, the number of foreign-born cases in North Carolina has exceeded one hundred and proportionally brings North Carolina into the range of other states with high foreign-born TB morbidity. The data in Table 10 show the trend for foreign-born TB cases in North Carolina. Attachment 2 provides a summary of the countries of origin of the foreign-born cases. Attachment 3 gives the incidence of Hispanic cases by county.

Table 10	Foreign-Born 1998-2003*					
Year	1998	1999	2000	2001	2002	2003
Cases	72	102	112	125	133	111
Percent	14	21	25	31	29	30

*Data source TIMS Surveillance Demographics Report.

Homeless: While there was a significant reduction in the number of TB cases reported in North Carolina, the decrease did not apply for the homeless risk factor. There was a 23.3% increase in the number of cases reported between 2002 and 2003. The data are presented in Table 11.

Table 11	Homeless 1998-2003*					
Year	1998	1999	2000	2001	2002	2003
Cases	33	34	29	32	30	37
Percent	7	7	6	8	7	10

*Data source TIMS Surveillance Demographics Report.

Occupation: Occupational exposure to TB is a topic of continuing concern. While the number of reported cases of TB declined, the actual and proportional rate in cases reported as a Health Care Worker did not change between 2002 and 2003. The data are presented in Table 12. Another table, Table 13, shows the number of Migrant Workers that were reported as TB cases.

Table 12	Health Care Workers with TB Disease 1998-2003*					
Year	1998	1999	2000	2001	2002	2003
Cases	15	13	10	14	8	7
Percent	3	3	2	4	2	2

*Data source TIMS Surveillance Demographics Report.

Table 13	Migrant Workers with TB Disease 1998-2003*					
Year	1998	1999	2000	2001	2002	2003
Cases	18	10	15	8	6	9
Percent	4	2	3	2	1	2

*Data source: CaroTIMS.

HIV Status: Worldwide, HIV and TB co-morbidity is the single largest contributor to mortality where TB disease is a factor. The following table (Table 14) gives the data for North Carolina. Table 15 shows the progress that has been made in North Carolina with respect to standard of care and HIV status—namely, an

increasing number of TB cases are accepting the offered HIV test, and only 19 failed to be offered testing. Table 16 presents the distribution of HIV and TB co-morbidity by age.

Table 14	TB Cases with HIV Infection 1998-2003*					
Year	1998	1999	2000	2001	2002	2003
Cases	46	54	43	43	41	47
Percent	9	11	10	11	9	13

*Data Source: CaroTIMS.

Table 15	HIV Status of Reported TB Cases 1998-2003*					
Status	1998	1999	2000	2001	2002	2003
Negative	245	285	259	234	276	238
Positive	46	54	43	43	41	47
Refused	102	76	81	69	65	59
Not Offered	87	64	39	27	41	19
Tested No Result	4	5	4	2	1	3
Unknown	13	6	20	22	10	8
Missing	1	0	1	0	0	0

*Data Source: CaroTIMS.

Table 16	TB Cases with HIV Infection by Age Group 1998-2003*					
Age Group	1998	1999	2000	2001	2002	2003
0-14	0	0	0	0	0	1
15-24	2	1	1	1	0	2
25-44	31	36	37	28	26	31
45-64	13	16	5	13	13	13
≥65	0	1	0	1	2	0

*Data source: CaroTIMS.

Table 17	Major Site of Disease 1998-2003*					
Site	1998	1999	2000	2001	2002	2003
Bone/Joint	7	11	20	11	11	11
Genitourinary	2	6	6	3	8	1
Lymphatic: Cervical	12	14	19	16	16	17
Lymphatic: Intrathoracic	4	2	2	4	5	4
Lymphatic: Other	9	3	7	12	5	10
Meningeal	6	7	5	0	5	3
Miliary	11	14	7	14	9	11
Other	12	10	6	10	11	13
Peritoneal	2	4	1	3	6	4
Pleural	32	31	24	24	17	11
Pulmonary	401	388	350	300	341	289

*Data source: CaroTIMS.

Attachment 1

TB Incidence by County and 2003 Case Rate	Census	1998	1999	2000	2001	2002	2003	Case Rate
North Carolina	8049313	498	488	447	397	434	374	4.6
Alamance	130800	3	6	1	2	2	5	3.8
Alexander	33603	0	1		1	0	0	0.0
Alleghany	10667				1		2	18.7
Anson	25275	1	3	1	1	1	2	7.9
Ashe	24384		1		1	1	2	8.2
Avery	17167		2	1		1		0.0
Beaufort	44958	5	2	2	1	2	4	8.9
Bertie	19773	4	5		3	3	4	20.2
Bladen	32278	5	4	6		3	1	3.1
Brunswick	73143	7	5	5	2	3	1	1.4
Buncombe	206330	5	5	6	4	4	3	1.5
Burke	89148	1	4	2	2	2	3	3.4
Cabarrus	131063	5	2	6	5	2	5	3.8
Caldwell	77415	2	2	3	4	1	1	1.3
Camden	6885				1	1	1	14.5
Carteret	59383	1		1	1	1	1	1.7
Caswell	23501			2			1	4.3
Catawba	141685	8	9	8	5	3	1	0.7
Chatham	49329	4	3	3	1	1		0.0
Cherokee	24298		1	1	1	1		0.0
Chowan	14526	2	4			3		0.0
Clay	8775							0.0
Cleveland	96287	5	1	1	2	3	2	2.1
Columbus	54749	3	7	10	10	4	4	7.3
Craven	91436	5	1	6		3		0.0
Cumberland	302963	21	18	21	21	17	16	5.3
Currituck	18190			1				0.0
Dare	29967			2		3		0.0
Davidson	147246	4	2	4	2	3	2	1.4
Davie	34835	1		1				0.0
Duplin	49063	5	9	8	5	7	2	4.1
Durham	223314	22	19	20	19	14	10	4.5
Edgecombe	55606	8	8	4		5	5	9.0
Forsyth	306067	20	20	13	15	16	16	5.2
Franklin	47260			2	2	3	1	2.1
Gaston	190365	7	5	11	7	5	3	1.6
Gates	10516				1			0.0
Graham	7993	2					1	12.5
Granville	48498	1	2	1	2	1	4	8.2

Greene	18974	3	3	6	2	2	4	21.1
Guilford	421048	34	34	20	27	43	31	7.4
Halifax	57370	15	4	4	11	6	5	8.7
Harnett	91025	8	3	5	6	3	2	2.2
Haywood	54033	1		5		1	2	3.7
Henderson	89173	3	2	6	1	1	6	6.7
Hertford	22601	8	5	2	7	4	2	8.8
Hoke	33646	4	2	3	1	4	1	3.0
Hyde	5826							0.0
Iredell	122660	3	2	2	2	2	2	1.6
Jackson	33121	1		1	2	1	1	3.0
Johnston	121965	11	20	12	8	10	7	5.7
Jones	10381	1	1	2		1	1	9.6
Lee	49040	4	6	5	3	3	2	4.1
Lenoir	59648	7	12	9	7	7	6	10.1
Lincoln	63780	2	1	1		1		0.0
Macon	29811		1	1		1		0.0
Madison	19635						1	5.1
Martin	25593	6	4	4	3	5	4	15.6
McDowell	42151	1	1	3	3	1	1	2.4
Mecklenberg	695454	59	79	67	40	49	47	6.8
Mitchell	15687		1	1		2		0.0
Montgomery	26822	2	2	1	1	9	4	14.9
Moore	74769	2	3	1		4	1	1.3
Nash	87420	10	6	4	5	7	4	4.6
New Hanover	160307	10	3	7	16	4	15	9.4
Northampton	22086	6	4	3	4	2	1	4.5
Onslow	150355	17	9	3	4	3	2	1.3
Orange	118227	4	1	8	3	2	4	3.4
Pamlico	12934							0.0
Pasquotank	34897	4	2	3	3	6	3	8.6
Pender	41082	4	2	3	3	6	3	7.3
Perquimans	11368	1	1		1	1		0.0
Person	35623	2		4	1	1	1	2.8
Pitt	133798	16	12	10	14	7	5	3.7
Polk	18324						1	5.5
Randolph	130454	2	6	1	1	3	5	3.8
Richmond	46564	4	3	3	3	10	2	4.3
Robeson	123339	3	8	6	4	8	11	8.9
Rockingham	91928	3	1	4	6	3	5	5.4
Rowan	130340	2	2	7	2	1		0.0
Rutherford	62899	2	2	1	2			0.0
Sampson	60161	10	12	6	2	2	6	10.0
Document1Scotland	35998	3	4	2	2	2	1	2.8

Stanly	58100		2	3	1	1	2	3.4
Stokes	44711	1			1		1	2.2
Surry	71219		3		2	2	2	2.8
Swain	12968	2				2		0.0
Translyvania	29334		1		1	1	1	3.4
Tyrrell	4149							0.0
Union	123677	4	6	3	5	3	3	2.4
Vance	42954					4	1	2.3
Wake	627846	41	36	39	40	57	46	7.3
Warren	19972		3	1	1			0.0
Washington	13723		1	1	2	1	2	14.6
Watauga	42695		3		1			0.0
Wayne	113329	4	13	7	9	8	5	4.4
Wilkes	65632	4		2	2	4	1	1.5
Wilson	73814	9	8	4	10	5	5	6.8
Yadkin	36348			1	2	2		0.0
Yancey	17774				2	1		0.0