Memorandum

Date: January 11, 2010

To: Southern Nevada District Board of Health

From: **Bonnie Sorenson, R.N., B.S.N.,** *Director of Clinic & Nursing Services* BS.
Lawrence K. Sands, D.O., M.P.H., *Chief Health Officer*

Subject: **Nursing Monthly Report – December 2009**

DIVISION OF NURSING DIRECTOR REPORT

I. Immunization Program:

A. Immunization Clinics:	Dec 2009	Dec 2008	YTD 2009	YTD 2008
Total Clients	5,058	5,642	84,178	98,250
Total Vaccine	10,550	12,942	184,108	199,376
Gratis	281	N/A	4,007	N/A

B. Health Card Clinic:	Dec 2009	Dec 2008	YTD 2009	YTD 2008
Total Client Encounters	5,917	6,192	89,234	100,484
Total Hepatitis A	4,136	4,365	60,506	74,869
Total TB Testing	817	788	14,019	14,569

C. Perinatal Hepatitis B Program:	Dec 2009	Dec 2008	YTD 2009	YTD 2008
Total Active Cases	228	296	Average 150	
# of Expectant Women	30	40	Average 45	
New Cases	10	9	76	119
Closed Cases	7	8	126	107
Total Cases	297	436	Average 300-400	
Hospitals Visited	24	12	176	127

D. Vaccines for Children:	Dec 2009	Dec 2008	YTD 2009	YTD 2008
Average provider rate (4:3:1:3:3:1)	56.7%		56.7%	N/A
Average provider rate (4:3:1:3:3:4)	51.2%		51.2%	N/A
#of Drop Outs from Program	0		22	N/A
#of New Enrollments *	1		13	N/A
#of Fed. Qualified Health Ctr.	96		96	N/A
#of Tribal Health	2		2	N/A
#of Other Public Health Centers	6		6	N/A

Total number of VFC to date is 159 (5 temporary), compared to 163 in January of 2009.
*The # of new enrollments is already added to the total # of providers.

E.	Immunization Project:	Dec 2009	Dec 2008	YTD 2009	YTD 2008
	Adolescent Clinic*				
	Clinics Public Schools	N/A	N/A	119	N/A
	Clinics Private Schools	N/A	N/A	3	0
	Total All Clinics	**N/A**	**N/A**	**122**	**78**
	Total Clients Seen	**N/A**	**N/A**	**1,801**	**3,541**
	Total Vaccine	**N/A**	**N/A**	**2,199**	**5,115**

***(Only Scheduled from January 21st through August 21st)**

F.	Child Care:	Dec 2009	Dec 2008	YTD 2009	YTD 2008
	Child Care Audits	18	11	160	29
	Average Immunization Rate	72%	30%	80%	30%
	Feedback	4	0	140	1
	Total Clinics	0	4	36	35
	Total Clients	0	67	441	173
	Total Vaccine	0	122	1,042	387

G.	Adult/WPV Program:	Dec 2009	Dec 2008	YTD 2009	YTD 2008
	Total Worksites Visited	2	3	74	70
	Total New Patient Encounters	57	10	3,038	1,352
	Total Contracts	5	0	195	154
	Total Purchase Orders	0	0	22	17

H.	Educational Events:	Dec 2009	Dec 2008	YTD 2009	YTD 2008
	Total Educational Events Held	0	0	12	5

I.	Flu Vaccine:				
	SNHD Vaccine:				
	Seasonal Flu Vaccine Given	2,325	3,106	14,468	15,479
	State Vaccine:	**Dec 2009**	**Dec 2008**	**YTD 2009**	**YTD 2008**
	Seasonal Flu Vaccine Given	2,466	3,377	12,057	12,404

***H1N1 Flu Vaccine Given to Date: 102,586**

J.	Immunization Exemption Class:	Dec 2009	Dec 2008	YTD 2009	YTD 2008
	Total Clients Attending	4	6	101	116

For the month of December – 29,632 people were immunized with H1N1 vaccine. Clinics were set up at CSN, Touro University, Desert Pines High School as well as the outlying Public Health Centers. Additional seasonal flu vaccine was also received with 2,325 doses administered during December.

Seventeen (17) Yellow Fever vaccines were administered during December.

Four clients attended the Immunization Education Class in December, bringing the total for the year

to 113. We continue to have people seeking exemption; however the numbers have changed from seeking religious exemption to medical exemption. We believe this is due in part to them not having to take the class for a medical exemption.

The Child Care Program conducted 4 feedback visits and completed 18 audits during December.

The Adult Program has plans for National Influenza Vaccination Week which is the second week in January. The staff will be shipping posters, handouts, etc., to all PHCs as well as maintaining an information table at Ravenholt. The focus is on H1N1 vaccine in this nation-wide campaign.

The Adult Program also continues to process claims for shingles vaccines through Medicare Part D. From August 27, 2009 through December 31, 2009 we have received 22 payments through e-Dispense.

II. Community Health Nursing Program:

A. Maternal Child Nursing Program:

The MCH Unit nurses continue to assist in H1N1 POD activities. They comprised a strike team that provided vaccinations to the staff and children of Child Haven.

MCH unit nurses are continuing to promote their role as Child Care Health Consultants in the community and have received requests for their services including requests for training of staff and program reviews in preparation for accreditation.

B. Special Project Team and Healthy Kids Team:

The Special Project Team provided Dental Carries Assessment and Fluoride Varnish application to grade school students at Tom Williams and G. Woolley ES. The team provided services to 224 children.

The EPSDT Coordinator made calls to 103 families who were newly enrolled in Medicaid or Nevada Check Up. Services were explained and referrals were made for 152 children.

C. Nurse Family Partnership (NFP):

The NFP unit currently has 108 active clients. The ages of our first time Moms range from 13 to 35. We have been successful in enrolling the majority (57%) of our clients by 16 weeks gestation. This is important as some of our clients have no access to prenatal care. To date there have been 76 births; 35 female and 41 male. Of the 76 births, 96% have been full term deliveries and 96% have been full birth weight (2500 or more).

D. Childhood Lead Poisoning Prevention Program (CLPPP):

Case Management

Lead Screening:

Total number of children screened at community venues ---------------------- 21
Total number of children screened at SNHD PHCs------------------------------ 18
Grand total number of children screened-- 39
Total number of children screened for year 2009 --------------------------------799

Case Management Activities:
Total number of cases opened -- 0
Total number of cases closed -- 1
Total number of contacts made by the CLPPP case manager ----------------- 11
Total number of active cases -- 11

E. Refugee Health Program:
The Refugee Health Program saw 55 clients during December. Of the 55 clients seen, 19 were referred for treatment, 2 for ova and parasites, 6 for Hep. (5 chronic 1 active), 1 for STD and 10 for TB issues.

III. HIV/STD:
Statistics for December 2009

➤Newly identified AIDS cases	= 25	YTD = 206
➤Newly identified HIV infections	= 21	YTD = 222
➤Pediatric AIDS cases	= 0	YTD = 0
➤Pediatric HIV infections	= 0	YTD = 0
➤Perinatally exposed*	= 1	YTD = 17

*To date 8 of the 17 infants have been verified to be seroreverter status or negative for HIV infection. Nine (9) infants still being followed as perinatally exposed.

A. Prevention Services:
On-going Outreach sites:
1. The Gay and Lesbian Center - every Monday and Thursday from 1 p.m. to 6:30 p.m. HIV and STD testing offered. Thirty two (32) Twinrix vaccinations were administered.

2. North Las Vegas Recreation Center – The first and third Tuesdays from 3 p.m. to 7 p.m.

3. Juvenile Justice Detention Center – every Wednesday and Thursday from 10 a.m. to 4 p.m. HIV and urine based Chlamydia and Gonorrhea testing is available.

4. Testing and discharge planning (HIV infected inmates) is offered on Monday and Wednesday at the Clark County Detention Center and Tuesday and Thursday at the City of Las Vegas Jail at 3200 Stewart Avenue.

Outreach Sites:
December 1, 2009 was World AIDS Day. Free HIV testing was offered at the following locations.

1. UNLV Health Services - 11 a.m. to 4 p.m.
2. Canyon Ridge Church - 10 a.m. to 7 p.m.
3. North Las Vegas Recreation Center - 3 p.m. to 7 p.m.
4. SNHD Annex A – 8 a.m. to 4 p.m.

Staff and Community Trainings:
1. HIV fundamentals offered from 10 a.m. to 3 p.m. on 12/02/09.

B. **STD Surveillance:**

Total Syphilis, Chlamydia and Gonorrhea reported to STD surveillance in December 2009.

Primary Syphilis	= 2	YTD = 27
Secondary Syphilis	= 2	YTD = 58
Early Latent Syphilis	= 11	YTD = 138
Late and Late Latent Syphilis	= 9	YTD = 49
Chlamydia	= 789	YTD = 8,274
Gonorrhea	= 155	YTD = 1,573
Presumptive Congenital Syphilis	= 0	YTD = 6

IV. **CCHD/SNHD Lab:**

December 11, 2009:

The Lab Staff participated in H1N1 POD during the month. Clinic services were suspended during the month to accommodate the Community.

December 10, 2009:

The Staff continues to participate in the Lab Transition Committee held ad hoc. This meeting covered the subject matter of use of STAT Rapid Plasm Reagin (RPR) and confirmatory Treponema Pallidum Particle Agglutation (TP-PA) as well as the lessons learned from episodic logistical concerns related to H1N1 planned events for Ravenholt Public Health Center.

Refer to the monthly statistical report.

V. **Tuberculosis Program:**

December 2, 2009:

Summation/Briefing at local hospital was conducted by Haley Blake, Disease Investigator Intervention Specialist. She succinctly described the goals of the contact investigation and elicited a very interactive discussion among the hospital staff on how to improve upon reporting to the District and how to stop transmission of this disease within the hospital using CDC recommended guidelines.

December 4, 2009:

Key members of SNHD toured University Medical Center's Rancho Rehab to assess feasibility of this site for provision of TB related services and Isolation & Quarantine. A proposal has been forwarded to executive team for their consideration.

December 9, 2009:

TB Elimination Program was evaluated by Paul Tribble, Centers for Disease Control (CDC), Regional Project Officer. His first stop was to meet the nurses who perform services with the Refugee Program. This program has been successful in identifying disease and referring active cases into treatment. Pending results of the final review; however, he agreed with the State TB Controller, Susanne Paulson, that the cases of TB in Nevada are "complex".

December 9, 2009:

Legal counsel successfully petitioned the District Court on behalf of the TB program to apply a Global

Positioning device on a non-compliant active case. This now brings the total of 2 GPS in use by this program through the contract with Omnilink.

December 14, 2009:
Judith Slaney, Community Health Nurse II, was recognized by the Nevada State Board of Nursing (NSBN) for her ongoing attendance and committee work on the Disability advisory Committee. Judy has worked at the health district for a number of years, in a variety of positions. She has been assigned to the TB team full time for three years and is fulfilling the mission of the Nursing Division by contributing her time to SNBN.

December 22, 2009:
Dr. Ineada Jack, with the University School of Medicine, Reno, communicated that a specialized study aimed at reviewing pediatric tuberculosis (TB) infected cases has been approved by the school's Institutional Review Board. The SNHD TB staff will be providing the cases for this review.

Tally for the month of people using the TB website for their questions/concerns: 2
Refer to the monthly statistical report.

VI. STD Clinic:

December 11, 2009:
The STD Clinic and clerical staff were assigned to participate in H1N1 clinic in the roles of POD Ops Vaccinator, Medical Screener, Administrative Support, Interpreters, etc., during the normal business day. Beginning in December and until further notice, this team has begun offering H1N1 vaccination to the targeted subpopulation as part of their STD Clinic encounter.

Tally for the month of people using the STD website for their questions/concerns: 11
Tally for the month of December Gratis 241 x 30 = $7,230.00

- Collected 59 partner referral cards
- Recorded 19 walk-outs(s); 21 clients turned away (all were supplied with yellow priority cards for return visits)
- Administered 107 doses of Bicillin (x 110/shot) = $11,770.00
- Administered 77 TwinRx vaccinations

Refer to the monthly statistical report.

VII. Nursing Quality Management:

This committee was cancelled for the month of December 2009.

VIII. Public Health Centers (PHC):

Staff at all locations have been volunteering to work weekday and weekend clinics to support the H1N1 Immunization Project. The following PHC numbers represent the weekday activities at each location.

A. Henderson PHC (HEN):
- Clients seen: IMM 909, Family Planning 309, Other: 50, Total 1,268.

B. East Las Vegas PHC (ELV):

- Clients seen: IMM 1,013, Family Planning 407, Other: 108, Total 1,526.

C. North Las Vegas PHC (NLV):
- Clients seen: IMM 861, Family Planning 332, Other: 135, Total 1,328.

D. Mesquite PHC – Mesquite continues to see a brisk amount of activity particularly for flu vaccine. Services are provided every Tuesday and Thursday from 8 a.m. to 4:30 p.m.
- Clients seen: Childhood/Adult IMM 71, H1N1 850, monthly total 921.

Staffing is supplemented by the North Las Vegas Public Health Nursing Team and the Manager's Administrative Secretary to cover time off requests or supplement when needed.

IX. <u>Family Planning:</u>

A. **Region Title X Family Planning:** The Family Planning Program is scheduled for a Federal audit in April.

B. **Peer Review Meeting:** Scheduled January 2010. The APN and management staff continue to develop policies and procedures consistent with evidenced based practice guidelines. This is an on-going project that is consistent with the requirements of Title X and the goal of the Nursing Division.

C. **Family Planning Monthly Audits:** Completed at ELV, NLV and HEN. Audits reflect input from Senior PHNs for overall completeness of documentation, Supervisor audits for compliance with Best Practice Guidelines and Policy, Nurse Practitioners review for adherence to protocols and standards of practice and M.D. audits for safe practice. There were no issues identified in the audit process for the month of December. The staff will amend the audit frequency to quarterly.

D. **Information and Education Committee:** Next scheduled meeting January 2010

E. **IT Enhancements:** The Family Planning Program received funding to purchase a new scheduling program and client follow-up call back program. The follow-up component can be utilized by STD as well as Family Planning. Program staff from each area will meet to begin exploring required options and work with IT to initiate the research, review and purchase process.

F. **Infertility Prevention Project (IPP):** Next scheduled meeting January 11th, 2010, Phoenix Arizona.

G. **Professional Education:** No specific trainings held this month.

X. <u>Nursing Development/Community Outreach Educator Program</u>

A. Education:
1. A total of 17 educational opportunities were provided in December 2009.
2. Satellite broadcasts (live and taped) and Live Speakers/Instructors (see attached).
3. More than 115 staff members attended these trainings.
4. Two CPR classes were conducted in December with 6 attending.

B. Student Activities:
1. Provided orientation for one UNLV School of Medicine pediatric resident scheduled for December.
2. Medical students: Two medical students rotated through the STD clinic in December.
3. Seven University of Southern Nevada nursing students completed their Community Health rotation

in December.

4. Nineteen activities were scheduled for two UNLV School of Medicine pediatric residents in December.

5. Planned clinical assignments for four Touro University Family Medicine students.
6. Met with instructor from UNLV to plan assignments for 6-8 nursing students for spring semester.

C. New Hires: No new hires in December.

D. Other Activities:

1. Worked in Immunization clinic two days/week in December.

BS: mg

Attachments: Monthly Statistical Report – December 2009
In-Service Calendar
Partnership Award Presented to Bonnie Sorenson
Letters of Appreciation
Article – First Case of Fearsome TB Strain Found in US
Technical Bulletin – Testing for TB Disease and Latent Infection

NURSING DIVISION MONTHLY REPORT

December 2009

CLINIC SERVICES

Not all services are available at all locations

Client Encounters by Location	Ravenholt	East LV PHC	North LV PHC	Hend PHC	Laughlin	MCH Satellites	Spring Valley PHC	Cambridge	TB Clinic	Airport	Mesquite	Overton	Adoles. Clinics	Childcare Clinics	Shots 4 Tots	Other**	TOTAL
Immunizations	2,570	791	566	766		1					189	8			70	97	5,058
Children's Exams		2		2		230											234
Family Planning	45	468	520	320													1,353
HIV/AIDS ***	946	10	3	7												948	1,914
Other Services*	27	104	183	45													359
STD Clinic	1,184																1,184
STD Investigations	113																113
TB Treatment/Control									9,165								9,165
Hep. A Desk (Health Card)	2,601	1,173		970	32			1,113			28						5,917
TOTAL	7,486	2,548	1,272	2,110	32	231		1,113	9,165		217	8	0	0	70	1,045	25,297

*First Aid, BP, PKUs ***Total Incl. Immuniz.

**Health Fairs

[shaded box] =not applicable

**** Numbers not available at this time

CLIENT ENCOUNTERS BY PROGRAM

	YTD 2009	YTD 2008
Immunizations	84,178	98,250
Children's Exams	3,356	3,181
Family Planning	16,591	18,243
HIV/AIDS	23,576	19,337
Other Services	6,069	10,330
STD	18,145	18,970
STD Investigations	1,461	1,225
TB Treatment & Control	97,436	76,191
Hep. A Desk (Health Card)	89,234	100,484
TOTAL	340,046	346,211

*Numbers are being audited for verification.

Approved by:

BS Bonnie Sorenson

AC Alice Costello

MEH Mary Ellen Harrell

VMN Veronica Morata-Nichols

POL Patricia O'Rourke-Langston

GO Gwen Osburn

NURSING DIVISION MONTHLY REPORT
December 20009
FIELD SERVICES

NARRATIVE: Out of the _46_ referrals received in the Community Health Nursing Program, 27_ were in Neonatal Intensive Care Units, and_8_ were for Child Protective Services.

COMMUNITY HEALTH Nursing Field Services (Home Visits)	Dec-09	YTD 2009	YTD 2008
MCH Team	143	1846	2552

COMMUNITY HEALTH MCH Healthy Kid's Team Statistical Data	Dec-09	YTD 2009 *	YTD 2008 *
Clients Seen for Immunizations	395	6162	
Exams	120	1690	
Fluoride Varnish	78	822	

*started reporting this December 2008

COMMUNITY HEALTH NFP Statistical Data	Dec-09	YTD 2009 *	YTD 2008 *
Referrals	25	294	
Enrolled	6	116	
Active	98		

* started reporting this December 2008

COMMUNITY HEALTH Refugee Health Program	Dec-09	YTD 2009 *	YTD 2008 *
Clients Seen	55	637	
Clients Requiring Follow-up for Communicable Disease	29	164	

*started reporting this February 2009

Perinatal Hep. B	Dec-09	Dec-08
Total active cases	228	296
# of expectant women	30	40
New cases	10	9

Vaccines for Children	Dec-09	YTD 2009	Dec-08
Number of Participating Providers	158		160
Number of VFC Site Visits	1	42	1
Number ofAFIX (Quality Assurance) Visits		48	
Number of Feedback/Follow-Up Visits	8	240	28
Number of State Requested Visits		39	17

Workplace Vaccinations	Dec-09	YTD 2009	YTD 2008
Patient Encounters	65	2305	2127
Worksites Visited	2	69	70

NURSING DIVISION MONTHLY REPORT

December 2009

FIELD SERVICES

TB Treatment & Control	Dec-09	YTD 2009	YTD 2008
New Cases	10	97	91
Patients on Prophylaxis	2,762	32,765	24,980
Contact investigations	10	99	109
Encounters	9,165	97,436	76,191

					Positives	
HIV/AIDS Testing by Location	Dec-09	YTD 2009	Dec-08	YTD 2008	YTD 2009	YTD 2008
SNHD-HIV, Outreach	1017	15916	1,356	16,010	245	235
BADA	94	1227	101	1160	4	6
MISC.(incl.J Jail)	203	3214	230	1,434	15	11
TOTAL	1,314	20,357	1,687	18,604	(89)264	252

*Parenthesis value represents number that were self-reported previous positive (screening for self-reported previous positives began in 2009)

Case Management Client Contacts	Dec-09	YTD 2009	YTD 2008
Adults - HIV/AIDS	308	3657	5847
Women & Children - HIV/AIDS	375	3837	3954
TOTAL	683	7494	9801

NURSING DIVISION MONTHLY REPORT

December 2009

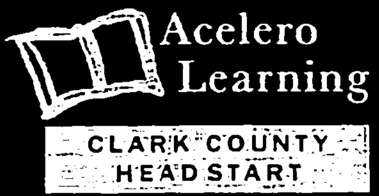
SUPPORT SERVICES

Volunteers	Number:	YTD 2009	YTD 2008	*Hours:*	*YTD 2009*	*YTD 2008*
Hope Worldwide Nevada		48	88		113.75	132

Laboratory Testing	Dec-09	YTD 2009	YTD 2008
Total Clients	354	6,785	19,299
Total Tests	500	12,402	53,490

December 2009 In-Service Education

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2 **HIV Fundamentals** 10:00-3:00 400 Shadow Lane Marnita x0835	3 **BBP** 9:30-11:30 HR TR 2	4	5
6	7	8	9 **CPR Renewal Class** 9:00 PCR RSVP Sherry via email	10	11	12
13	14	15	16 **UnNatural Causes: Part 2** 3:00-4:00 ACR 2 RSVP Sherry via email	17	18 **BBP Class** 9:30-11:30 HR TR 2	19
20	21	22	23 **UnNatural Causes: Part 2** 3:00-4:00 ACR 2 RSVP Sherry via email	24	25 Merry Christmas	26
27	28	29	30 **CPR: Initial Class** 9:00 PCR RSVP Sherry via email	31		



Partnership Award

Presented To

Bonnie Sorenson

Community Health Nursing
Southern Nevada Health District

In Appreciation Of Your
Dedicated Service, Devotion And
Commitment To The Children
And Families In
Acelero Learning Head Start

December 2009

Bonnie Sorenson

From: Jo Alexander
Sent: Monday, December 21, 2009 9:14 AM
To: Immunizations; Veronica Morata-Nichols; Shelli Clark
Cc: Bonnie Sorenson; Rey Sandoval; Michelle Velasco
Subject: RE: H1N1 flu shot clinic
Attachments: image003.jpg

Thank you again everyone!

Jo Andrews-Alexander RN, BSN, MSHA
CHN Supervisor Immunization Program
Phone: 702-759-0882
Fax: 702-383-1446

From: Michelle Stanton **On Behalf Of** Immunizations
Sent: Monday, December 21, 2009 9:09 AM
To: Jo Alexander; Veronica Morata-Nichols; Shelli Clark
Subject: FW: H1N1 flu shot clinic

Another compliment…YIPPEEE ☺

Michelle Stanton
SNHD - Immunization Project

From: [redacted]]
Sent: Friday, December 18, 2009 4:39 PM
To: Immunizations
Subject: H1N1 flu shot clinic

My husband and I, both over 65 and in good health, went to your Shadow Lane facility on Friday, Dec 18, 2009, to get the H1N1 Flu shot. We came prepared to to wait in a long line. We were pleasantly surprised to find that as soon as we stepped inside the door, we were handed a form to fill out, and as soon as we completed it, we were escorted to the area to receive the shot. From the time we entered the parking lot, until we left the parking lot was maybe 10 minutes. Every one was extremely friendly and professional. There were many people to assist us. I just wanted to take the time to let you know how well you are handling this clinic. Thank you

Midge Gamage

From: Bonnie Sorenson
Sent: Monday, December 21, 2009 12:55 PM
To: Midge Gamage
Subject: FW: Thank You

Another one for the board book

From: Jacqueline Wilson **On Behalf Of** SNHDPublic Information
Sent: Friday, December 18, 2009 2:03 PM
To: Lawrence Sands, DO, MPH; Bonnie Sorenson
Cc: Jennifer Sizemore
Subject: FW: Thank You

Please see the below email. ☺

Jacci Wilson
Web Content Specialist
Southern Nevada Health District
(702) 759-1394
wilsonj@snhdmail.org

From: [redacted]
Sent: Friday, December 18, 2009 1:30 PM
To: SNHDPublic Information
Subject: Thank You

I wanted to write a short note to commend you on your staffing at the Ravenholt Public Health Center. Today I went to renew my Health Card – and followed procedure to get my Hepatitis A vaccination. After I had gotten the shot I headed into the main lobby where I felt dizzy and decided to sit down. I happened to faint in the waiting area near the main door.

I awoke to several of your employees who were outstanding. Unfortunately I did not catch each persons name but I managed to get the name of Angela who was the 'Nurse on Duty' or 'First Aid Nurse'!! They all went above and beyond the call of duty, taking my blood pressure, offering me juice and water and even offering me assistance to my car.

Please pass this on to your senior management as these employees need to be recognized for outstanding service to there patients. Truly Five Star Service.

Thank You and Happy Holidays!

[redacted]

From: Patricia O'Rourke-Langston
Sent: Thursday, December 31, 2009 10:23 AM
To: Midge Gamage
Cc: Kara Bennis
Subject: Emailing: First Case of Highly Drug-Resistant Tuberculosis in US - Sphere News - For inclusion in next BOH as an attachment please

First Case of Fearsome TB Strain Found in US

Margie Mason and Martha Mendoza

AP

LANTANA, Fla. (Dec. 27) -- It started with a cough, an autumn hack that refused to go away.

Then came the fevers. They bathed and chilled the skinny frame of Oswaldo Juarez, a 19-year-old Peruvian visiting to study English. His lungs clattered, his chest tightened, and he ached with every gasp. During a wheezing fit at 4 a.m., Juarez felt a warm knot rise from his throat. He ran to the bathroom sink and spewed a mouthful of blood.

I'm dying, he told himself, "because when you cough blood, it's something really bad."

It was really bad, and not just for him.

Doctors say Juarez's incessant hack was a sign of what they have both dreaded and expected for years: this country's first case of a contagious, aggressive, especially drug-resistant form of tuberculosis. The Associated Press learned of his case, which until now has not been made public, as part of a six-month look at the soaring global challenge of drug resistance.

Lynne Sladky, AP

Oswaldo Juarez, who needs two years of treatment for a potent form of tuberculosis, is at a quarantine hospital in Florida. "You feel like you're killing somebody, like you could kill a lot of people," the Peruvian said of the diagnosis. "That was the worst part."

Juarez's strain -- so-called extremely drug-resistant (XXDR) TB -- has never before been seen in the U.S., according to Dr. David Ashkin, one of the nation's leading experts on tuberculosis. XXDR tuberculosis is so rare that only a handful of other people in the world are thought to have had it.

"He is really the future," Ashkin said. "This is the new class that people are not really talking too much about. These are the ones we really fear because I'm not sure how we treat them."

Forty years ago, the world thought it had conquered TB and any number of other diseases through the new wonder drugs: antibiotics. U.S. Surgeon General William H. Stewart announced it was "time to close the book on infectious diseases and declare the war against pestilence won."

Today, all the leading killer infectious diseases on the planet -- TB, malaria and HIV among them -- are mutating at an alarming rate, hitchhiking their way in and out of countries. The reason: Overuse and misuse of the very drugs that were supposed to save us.

Just as the drugs were a manmade solution to dangerous illness, the problem with them is also manmade. It is fueled worldwide by everything from counterfeit drugmakers to the unintended consequences of giving drugs to the poor without properly monitoring their treatment. Here's what the AP found:

-- In Cambodia, scientists have confirmed the emergence of a new drug-resistant form of malaria, threatening the only treatment left to fight a disease that already kills 1 million people a year.

-- In Africa, new and harder to treat strains of HIV are being detected in about 5 percent of new patients. HIV drug resistance rates have shot up to as high as 30 percent worldwide.

-- In the U.S., drug-resistant infections killed more than 65,000 people last year -- more than prostate and breast cancer combined. More than 19,000 people died from a staph infection alone that has been eliminated in Norway, where antibiotics are stringently limited.

"Drug resistance is starting to be a very big problem. In the past, people stopped worrying about TB and it came roaring back. We need to make sure that doesn't happen again," said Dr. Thomas Frieden, director of the U.S. Centers for Disease Control and Prevention, who was himself infected with tuberculosis while caring for drug-resistant patients at a New York clinic in the early '90s. "We are all connected by the air we breathe, and that is why this must be everyone's problem."

This April, the World Health Organization sounded alarms by holding its first drug-resistant TB conference in Beijing. The message was clear: The disease has already spread to all continents and is increasing rapidly. Even worse, WHO estimates only 1 percent of resistant patients received appropriate treatment last year.

"We have seen a huge upburst in resistance," said CDC epidemiologist Dr. Laurie Hicks.

Juarez' strain of TB puzzled doctors. He had never had TB before. Where did he pick it up? Had he passed it on? And could they stop it before it killed him?

At first, mainstream doctors tried to treat him. But the disease had already gnawed a golf-ball-sized hole into his right lung.

TB germs can float in the air for hours, especially in tight places with little sunlight or fresh air. So every time Juarez coughed, sneezed, laughed or talked, he could spread the deadly germs to others.

"You feel like you're killing somebody, like you could kill a lot of people. That was the worst part," he said.

Tuberculosis is the top single infectious killer of adults worldwide, and it lies dormant in one in three people, according to WHO. Of those, 10 percent will develop active TB, and about 2 million people a year will die from it.

Simple TB is simple to treat -- as cheap as a $10 course of medication for six to nine months. But if treatment is stopped short, the bacteria fight back and mutate into a tougher strain. It can cost $100,000 a year or more to cure drug-resistant TB, which is described as multi-drug-resistant (MDR), extensively drug-resistant (XDR) and XXDR.

There are now about 500,000 cases of MDR tuberculosis a year worldwide. XDR tuberculosis killed 52 of the first 53 people diagnosed with it in South Africa three years ago.

Drug-resistant TB is a "time bomb," said Dr. Masae Kawamura, who heads the Francis J. Curry National Tuberculosis Center in San Francisco, "a manmade problem that is costly, deadly, debilitating, and the biggest threat to our current TB control strategies."

Juarez underwent three months of futile treatment in a Fort Lauderdale hospital. Then in December 2007 he was sent to A.G. Holley State Hospital, a 60-year-old massive building of brown concrete surrounded by a chain-link fence, just south of West Palm Beach.

"They told me my treatment was going to be two years, and I have only one chance at life," Juarez said. "They told me if I went to Peru, I'm probably going to live one month and then I'm going to die."

Holley is the nation's last-standing TB sanitarium, a quarantine hospital that is now managing new and virulent forms of the disease.

Tuberculosis has been detected in the spine of a 4,400-year-old Egyptian mummy. In the 1600s, it was known as the great white plague because it turned patients pale. In later centuries, as it ate through bodies, they called it "consumption." By 1850, an estimated 25 percent of Europeans and Americans were dying of tuberculosis, often in isolated sanatoriums like Holley where they were sent for rest and nutrition.

Then in 1944 a critically ill TB patient was given a new miracle antibiotic and immediately recovered. New drugs quickly followed. They worked so well that by the 1970s in the U.S., it was assumed the disease was a problem of the past.

Once public health officials decided TB was gone, the disease was increasingly missed or misdiagnosed. And without public funding, it made a comeback among the poor. Then immigration and travel flourished, breaking down invisible walls that had contained TB.

Drug resistance emerged worldwide. Doctors treated TB with the wrong drug combinations. Clinics ran out of drug stocks. And patients cut their treatment short when they felt better, or even shared pills with other family members.

There are two ways to get drug resistant TB. Most cases develop from taking medication inappropriately. But it can also be transmitted like simple TB, a cough or a sneeze.

In the 1980s, HIV and AIDS brought an even bigger resurgence of TB cases. TB remains the biggest killer of HIV patients today.

For decades, drug makers failed to develop new medicines for TB because the profits weren't there. With the emergence of resistant TB, several private drug companies have started developing new treatments, but getting

an entire regimen on the market could take 24 years. In the meantime, WHO estimates each victim will infect an average of 10 to 15 others annually before they die.

A.G. Holley was back in business.

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Holley's corridors are long and dark, with fluorescent tubes throwing harsh white light on drab walls. One room is filled with hulking machines once used to collapse lungs, sometimes by inserting ping pong balls. Antique cabinets hold metal tools for spreading and removing ribs -- all from a time when TB was rampant and the hospital's 500 beds were filled.

Only 50 beds are funded today, but those are mostly full. More than half the patients are court-ordered into treatment after refusing to take their meds on the outside.

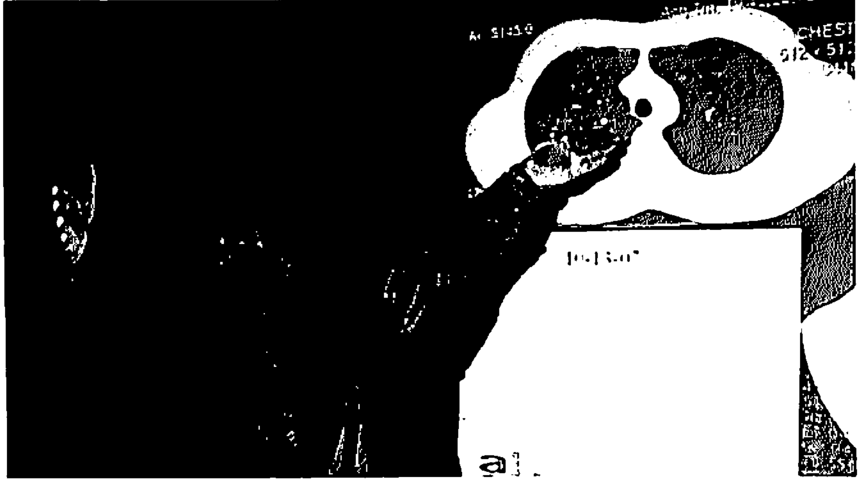
Juarez came voluntarily. In the beginning, he was isolated and forced to wear a mask when he left his room. He could touch his Peruvian family only in pictures taped to the wall. He missed his dad, his siblings, his dog, his parrot, and especially his mother.

"I was very depressed," he said. "I had all this stuff in my mind."

He spent countless hours alone inside the sterile corner room reserved for patients on extended stays -- dubbed "the penthouse" because it is bigger and lined by a wall of windows.

His moods ran hot and cold. He punched holes in the walls out of frustration, played loud reggaeton music with a thumping beat and got into fights with other patients. He covered his door's small window with a drawing of an evil clown to keep nurses from peering inside. He made friends with new patients, but was forced to stay long after many of them came, got cured, and left.

Early on, Juarez's treatment was similar to chemotherapy. Drugs were pumped into his bloodstream intravenously three times a day, and he choked down another 30 pills, including some that turned his skin a dark shade of brown. He swallowed them with spoonfuls of applesauce, yogurt, sherbet and chocolate pudding, but once they hit his stomach, waves of nausea sometimes sent him heaving. He would then have to force them all down again.



Lynne Sladky, AP

Dr. David Ashkin points to an X-Ray of patient Oswaldo Juarez's chest. "This is the new class that people are not really talking too much about," Ashkin said. "These are the ones we really fear because I'm not sure how we treat them."

"When he first came in we really had to throw everything and the kitchen sink at him," said Ashkin, the hospital's medical director, who experimented on Juarez with high doses of drugs, some not typically used for TB. "It was definitely cutting edge and definitely somewhat risky because it's not like I can go to the textbooks or ... journal articles to find out how to do this."

After 17 years of handling complex cases -- including TB in the brain and spine -- Ashkin had never seen a case so resistant. He believed he would have to remove part of Juarez's lung.

Ashkin dialed Peru to talk to the young man's father.

It's a rare disease, said Ashkin, hard to define. Your son is one of two people in the world known to have had this strain, he said.

"What happened to the other person?" his father asked.

"He died."

Juarez's adventure in the U.S. had turned into a medical nightmare.

About 60 million people visit the U.S. every year, and most are not screened for TB before arrival. Only refugees and those coming as immigrants are checked. The top category of multidrug-resistant patients in the U.S. -- 82 percent of the cases identified in 2007 -- was foreign-born patients, according to the CDC.

The results are startling among those tested, said Dr. Angel Contreras, who screens Dominicans seeking to enter the U.S. on immigrant visas. The high rate of MDR-TB in the Dominican Republic coupled with high HIV rates in neighboring Haiti are a health crisis in the making, he said.

"They're perfect ingredients for a disaster," he said.

Juarez's homeland, Peru, is also a hotspot for multidrug-resistant TB. DNA fingerprinting linked his disease to similar strains found there and in China, but none with the same level of resistance.

"So the question is: Is this a strain that's evolving? That's mutating? That's becoming more and more resistant?" asked Ashkin. "I think the answer is yes."

Doctors grappling with these new strains inadvertently give the wrong medicines, and so the TB mutates to become more aggressive and resistant.

Poor countries also do not have the resources to determine whether a patient's TB is drug-resistant. That requires sputum culturing and drug-susceptibility testing -- timely, expensive processes that must be performed in capable labs. WHO is working to make these methods more available in high-risk countries as well as negotiating cheaper prices for second-line drugs.

"There's a lot of MDR and XDR-TB that hasn't been diagnosed in places like South Africa and Peru, Russia, Estonia, Latvia," said Dr. Megan Murray, a tuberculosis expert at Harvard. "We think it's a big public health threat."

Experts argue if wealthy countries do not help the worst-hit places develop comprehensive TB programs, it puts

everyone at risk.

"You're really looking at a global issue,'" said Dr. Lee Reichman, a TB expert at the New Jersey Medical School Global Tuberculosis Institute. "It's not a foreign problem, you can't keep these TB patients out. It's time people realize that."

Juarez spent a year and a half living alone in a room plastered with bikini-clad blondes, baseball caps and a poster of Mt. Everest for inspiration. There were days when he simply shut down and refused his meds until his family convinced him to keep fighting.

"I was thinking that maybe if I need to die, then that's what I need to do," he said, perched on his bed in baggy jeans. "I felt like: 'I'm never going to get better. I'm never going to get out of here.'"

When put side by side, his CAT scans from before and after treatment are hard to believe. The dark hole is gone, and only a small white scar tattoos his lung.

"They told me the TB is gone, but I know that TB, it doesn't have a cure. It only has a treatment like HIV," he said, his English now fluent and his body weight up 32 pounds from when he first arrived. "The TB can come back. I saw people who came back to the hospital twice and some of them died. So, it's very scary."

His treatment cost Florida taxpayers an estimated $500,000, a price tag medical director Ashkin says seems like an astronomical amount to spend on someone who's not an American citizen. But he questions how the world can afford not to treat Juarez and others sick with similar lethal strains.

"This is an airborne spread disease ... so when we treat that individual, we're actually treating and protecting all of us," he said. "This is true homeland security."

In July, at age 21 -- 19 months after checking in -- Juarez swallowed his last pills, packed a few small suitcases and wheeled them down the hospital's long corridor.

The last time doctors saw him, he was walking out of the sanitarium into south Florida's soupy heat.

Martha Mendoza is an AP national writer based in Mexico City. Margie Mason is an AP medical writer who worked on this project as a 2009 Nieman Global Health Fellow with The Nieman Foundation at Harvard University.

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TECHNICAL BULLETIN

TOPIC: Testing for TB Disease and Latent Infection
DATE: October 13, 2009
TO: All Healthcare Providers **Screen Patients for Tuberculosis**

Nevada has identified an increase in the number of TB cases among high risk individuals (e.g.Foreign-birth or extended travel abroad, previous contact to TB case, previous LTBI diagnosis out treatment, incarceration, homelessness, or IV drug use) who also have immunocompromising conditions or those receiving medications that may compromise the immune system. The purpose of this technical bulletin is to encourage TB awareness among this high risk population and recommend appropriate testing for these individuals.

The Nevada State Health Division (NSHD) is recommending that public health providers and clinicians consider screening for *M. tuberculosis* infection prior to implementing treatment regimens for patients who may become immunocompromised. In 2008 and 2009 (to date), 23 percent of all active TB cases in Nevada either have an immmunocompromising medical condition or are receiving medications that induce an immunosuppressed status.

Number of Persons in Nevada with an Immunosuppressive Condition and a Co-Morbid Diagnosis of TB: (As of 9/24/2009) **2008**
Diabetes: **13 15**
Cancer pt. with a chemotherapy treatment regimen: **5 2**
Rheumatoid Arthritis receiving TNF: **2 2**
HIV: **2 3**
Other Autoimmune Diseases receiving steroidal therapy: **1 1**

The NSHD recommends that health-care providers perform a comprehensive clinical evaluation for *M.tuberculosis* on all patients who have medical risk factors[1], or will be taking anti-tumor necrosis factor agents (TNF-alpha inhibitors)[2], have T-cell deficiencies or dysfunction[3], or are receiving treatments for cancer or blood disorders which may leave the immune system severely weakened and substantially increase their risk for TB disease. These patients should be screened in settings where they receive primary or subspecialty care (e.g., infectious disease, immunology, endocrinology, hematology/oncology, nephrology, rheumatology, pulmonology, and gastroenterology) or on admission to a hospital.[4] A TB evaluation should include a comprehensive history (e.g. Foreign-birth or extended travel abroad, previous contact to TB case, previous LTBI diagnosis or treatment, incarceration, homelessness, or IV drug use), an evaluation for signs and symptoms (i.e. night sweats, weight loss, cough and hemoptysis), a physical examination, and when applicable, a TB screening test [tuberculin skin test (TST) or Interferon-gamma (INF-γ) release assay (IGRA)].[5] If the TST or IGRA result is positive or if clinical or epidemiologic suspicion

exists, perform a chest radiograph (CXR). In mildly immunocompromised TB patients, the appearance on the CXR is often classical with cavities and upper lobe infiltrates, while in severe immunocompromised TB patients, the appearance is often atypical or extrapulmonary.

The effects of impaired immunity are likely to result in a high rate of false-negative TB test results.[6] Despite the limitations of TB screening tests in this population, early detection and treatment of LTBI is imperative. Patients should be tested at least once for a baseline result and rescreened periodically if the patient's history indicates they have a high likelihood of exposure. Interpreting clinical test results for LTBI among immunocompromised patients must be done utilizing each patient's personal epidemiological information. Although the TST and IGRA tests are helpful when positive, a negative result does not rule out infection. Therefore, it is recommended that clinicians be extremely vigilant for signs and symptoms of TB disease.

As the development of disease in this vulnerable group may be associated with more morbidity and mortality than normal and TB symptoms are often attributed to the prescribed treatment regimen, early and possibly sequential TB screening for a dual diagnosis state is recommended. Suspected TB disease in Nevada is a reportable condition.
Reporting forms can be found at:
[1] http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4906a1.htm
[2] Wallis RS *et al.* (2004) Granulomatous infectious diseases associated with tumor necrosis factor antagonists. Clin Infect Dis 38, [Erratum] Clin
Infect Dis 39

http://health.nv.gov/Epidemiology/MorbidityForm-interactive.pdf
[4] CDC Targeted Tuberculin Testing and Treatment of Latent Tuberculosis Infection, United States. *MMWR*, June 09, 2000 / 49(RR06);1-54 [5] Joseph Keane, Barry Bresnihan. *TB Reactivation During Immunosuppressive Therapy: Point-of-entry Testing*. St. James's Hospital and Trinity
College Dublin, Ireland, St. Vincent's University Hospital, Dublin, Ireland.
[6] J. Keane. *TNF-blocking agents and tuberculosis: new drugs illuminate an old topic.* Rheumatology 2005;44:714–720 available at:
http://rheumatology.oxfordjournals.org/cgi/reprint/44/6/714
[1] http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4906a1.htm
[2] Wallis RS *et al.* (2004) Granulomatous infectious diseases associated with tumor necrosis factor antagonists. Clin Infect Dis 38, [Erratum] Clin
Infect Dis 39
[3] http://www.merck.com/media/mmpe/pdf/Table_052-7.pdf

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