

THE LANCET

Infectious Diseases

Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed.
We post it as supplied by the authors.

Supplement to: Schwartz NG, Hernandez-Romieu AC, Annambhotla P, et al.
Nationwide tuberculosis outbreak in the USA linked to a bone graft product:
an outbreak report. *Lancet Infect Dis* 2022; published online Aug 4. [https://doi.org/10.1016/S1473-3099\(22\)00425-X](https://doi.org/10.1016/S1473-3099(22)00425-X).

Supplementary appendix

Schwartz NG, Hernandez-Romieu AC, Annambhotla P, et al. Nationwide tuberculosis outbreak in the USA linked to a bone graft product: an outbreak report.

Contents

Bone Allograft Tuberculosis Investigators	2
Supplementary methods	7
Supplementary tables.....	8
Table S1. Evidence of surgical site tuberculosis disease in bone allograft recipients	8
Table S2. Evidence of pulmonary tuberculosis disease in bone allograft recipients.....	8
Table S3. Evidence of central nervous system tuberculosis disease in bone allograft recipients.....	8
Table S4. Evidence of tuberculosis disease at other anatomic sites in bone allograft recipients	9
Supplementary references.....	10

Bone Allograft Tuberculosis Investigators

Arizona

Kristen (Herrick) Brancato — Arizona Department of Health Services, Phoenix
 Renuka Khurana — Maricopa County Department of Public Health, Phoenix
 Elizabeth Kim — Arizona Department of Health Services, Phoenix
 Cherie Stafford — Arizona Department of Health Services, Phoenix
 Evan M. Timme — Arizona Department of Health Services, Phoenix
 Lisa R. Villarreal — Arizona Department of Health Services, Phoenix

California

Kristin Edler — County of San Luis Obispo Public Health Department, San Luis Obispo
 Jennifer M. Flood — California Department of Public Health, Richmond
 C. Kin Lam — California Department of Public Health, Richmond, and Centers for Disease Control and Prevention
 Scott A. Nabity — California Department of Public Health, Richmond, and Centers for Disease Control and Prevention
 Tambi Shaw — California Department of Public Health, Richmond

Colorado

Robert W. Belknap — Public Health Institute at Denver Health, Denver
 Juli Bettridge — Colorado Department of Public Health and Environment, Denver
 Caitlin M. Brown — St. Joseph Hospital, Denver
 Christopher A. Czaja — Colorado Department of Public Health and Environment, Denver
 Peter B. Dupree — Colorado Department of Public Health and Environment, Denver
 Michelle Haas — Public Health Institute at Denver Health, Denver
 Kristen E. Marshall — Colorado Department of Public Health and Environment, Denver, and Centers for Disease Control and Prevention
 Ann M. Scarpita — Colorado Department of Public Health and Environment, Denver
 Kelsey E. Star — St. Joseph Hospital, Denver

Delaware

Carol A. Briody — ChristianaCare, Wilmington
 Marci Drees — ChristianaCare, Wilmington
 Chad Duffalo — Christiana Hospital, Newark, and Infectious Disease Consultants, Newark
 Mark Eskander — ChristianaCare, Wilmington, and Delaware Orthopedic Specialists, Wilmington
 Lija Gireesh — ChristianaCare, Wilmington
 Emily Hanlin — Delaware Department of Health and Social Services, Division of Public Health, Dover
 Rick Hong — Delaware Department of Health and Social Services, Division of Public Health, Dover
 Kenneth Lingenfelter — ChristianaCare, Wilmington, and First State Orthopaedics, Newark
 Tabé Mase — ChristianaCare, Wilmington
 Heather Pelkey — ChristianaCare, Wilmington
 Malika Taylor — Delaware Department of Health and Social Services, Division of Public Health, Dover

Florida

Duane A. Ashe — Florida Department of Health, Tallahassee
 David Ashkin — Florida Department of Health, Tallahassee
 Argentina R. Charles — Florida Department of Health, Tallahassee
 Melanie A. Coleman — Ascension Sacred Heart on the Emerald Coast, Miramar Beach
 Jalysa N. Erskine — Florida Department of Health, Tallahassee
 Lori A. Johnston — Florida Department of Health, Tallahassee
 Christopher Prestel — Florida Department of Health and Centers for Disease Control and Prevention
 Thomas Privett — Florida Department of Health and Centers for Disease Control and Prevention
 LaTweika A.T. Salmon — Florida Department of Health, Tallahassee
 Marcia Yolman — Boca Raton Regional Hospital, Boca Raton

Georgia

Erin L. Anderson — Georgia Department of Public Health, Atlanta
 Jeanne Negley — Georgia Department of Public Health, Atlanta
 Susan M. Ray — Georgia Department of Public Health, Atlanta

Benjamin Yarn — Georgia Department of Public Health, Atlanta

Illinois

Catherine A. Counard — Illinois Department of Public Health, Chicago

Elaine Darnall — Illinois Department of Public Health, West Chicago

Shelly Reeter — Illinois Department of Public Health, Springfield

Lisa A. Tossi — Illinois Department of Public Health, Springfield

Indiana

Tamasin Adams — Lutheran Hospital, Fort Wayne

Haley Beeman — Indiana Department of Health, Indianapolis

Amy L. Bennett — St. Joseph Regional Medical Center, Mishawaka

Jill Brock — Indiana Department of Health, Indianapolis

Rachel Cathey — Eskenazi Hospital, Indianapolis

Biak Chinpar — Indiana Department of Health, Indianapolis

Roxane Collins — Indiana Department of Health, Indianapolis

Stephanie Craig — Reid Health, Richmond

Amy Fohl — Fayette County Health Department, Connersville

Lauren Gunderson — St. Joseph County Health Department, South Bend

Diedre Hamilton — Grant County Health Department, Marion

Alicia Hill — Rush County Health Department, Rushville

Carma Jo Johnson — DeKalb County Health Department, Auburn

Mary Kinser — Lawrence County Health Department, Bedford

Christy Kitt — Elkhart County Health Department, Elkhart

Scovia M. Kiwanuka — Indiana Department of Health, Indianapolis

Sarah P. Koch — Marion County Public Health Department, Indianapolis

Debra A. Krafft — DeKalb County Health Department, Auburn

Nikki LaTourrette — Howard County Health Department, Kokomo

Michelle Law — Dupont Hospital, Fort Wayne

Dixie Meyer — Rush County Health Department, Rushville

Sandy Miller — Owen County Health Department, Spencer

Sandra Morse — Indiana Department of Health, Indianapolis

Christina Nolan — LaPorte County Health Department, Michigan City

Erika Pitcher — Allen County Department of Health, Fort Wayne

Carrie Ramey — Greene County Health Department, Bloomfield

Teresa Reed — Kosciusko County Health Department, Warsaw

Catherine Sartino — Indiana University Health Methodist Hospital, Indianapolis

Kimberly Schneider — Reid Health, Richmond

Rhomonda Scifres — Jackson County Health Department, Seymour

Nancy Wagner — Delaware County Health Department, Muncie

Mary Weber — Elkhart County Health Department, Elkhart

Kelly White — Indiana Department of Health, Indianapolis

Jean Young — Indiana University Health Bloomington Hospital, Bloomington

Kentucky

Emily A. Anderson — Kentucky Department for Public Health, Frankfort

Laura L. Collins — Lexington-Fayette County Health Department, Lexington

Andrea Flinchum — Kentucky Department for Public Health, Frankfort

Natalie Hickam — CHI Saint Joseph Health, Lexington

Charles A. Kennedy — CHI Saint Joseph Health, Lexington

Michelle McClure — Saint Joseph Health, Lexington

Natasha Reese — CHI Saint Joseph Health, Lexington

Charles Rhea — Kentucky Department for Public Health, Frankfort

Dana M. Stephens — CHI Saint Joseph Health, Lexington

Michelle Stephens — Kentucky Department for Public Health, Frankfort

Louisiana

John P. Areno — Louisiana Department of Health, Shreveport

Michael Lacassagne — Louisiana Department of Health, New Orleans

Erica J. Washington — Louisiana Department of Health, New Orleans

Jamie Wooley — Louisiana Department of Health, Shreveport
 Kathryn Yoo — Louisiana Department of Health, New Orleans

Maryland

Nancy G. Baruch — Maryland Department of Health, Baltimore
 Lisa S. Paulos — Maryland Department of Health, Baltimore
 Rebecca F. Perlmutter — Maryland Department of Health, Baltimore
 Jamie H. Rubin — Maryland Department of Health, Baltimore
 Kelly S. Russo — Anne Arundel County Department of Health, Annapolis
 Paul G. Saleeb — Maryland Department of Health, Baltimore

Michigan

Brianne Bachman — Beaumont Hospital, Farmington Hills
 Candice E. Betke — Detroit Public Health — TB Control Program, Detroit
 Brenda M. Brennan — Michigan Department of Health and Human Services, Lansing
 Rebecca Campau — St. Clair County Health Department, Port Huron
 Sarah Carden — Beaumont Hospital, Troy
 Thomas Chevalier — Henry Ford Health System, Detroit
 James Collins — Michigan Department of Health and Human Services, Lansing
 Tammy Cooper — Detroit Public Health — TB Control Program, Detroit
 Jennifer M. Cordell — Ascension Providence Hospital, Southfield
 Joseph R. Coyle — Michigan Department of Health and Human Services, Lansing
 Peter Davidson — Michigan Department of Health and Human Services, Lansing
 Susan Fletcher-Gutowski
 Michelle Flood — Ascension St. John Hospital, Detroit
 Wendy Frizzo — Beaumont Hospital, Troy
 Karen Gorman — Wayne County Department of Health, Wayne
 Jacqueline Han — Beaumont Hospital, Troy
 Dana G. Kissner — Wayne State University Physician Group, Detroit
 Deedra LaPointe — Beaumont Hospital, Troy
 Niki Mach — Macomb County Health Department, Mt. Clemens
 Jennifer A. Madigan — Ascension St. John Hospital, Detroit
 Nicole M. McGuire — Michigan Department of Health and Human Services, Lansing
 Annette Mercatante — St. Clair County Health Department, Port Huron
 Jane E. Rogers — Michigan Department of Health and Human Services, Lansing
 Jonah P. Sementkowski — Beaumont Health, Trenton
 Mamta Sharma — Ascension St. John Hospital, Detroit
 Shona R. Smith — Michigan Department of Health and Human Services, Lansing
 James C. Sunstrum — Beaumont Health, Dearborn
 Betty Thompson — Beaumont Health, Trenton
 Elizabeth Thompson — Beaumont Health, Trenton
 Denise Wisner — Macomb County Health Department, Mt. Clemens

Minnesota

Sarah Gordon — Minnesota Department of Health, Saint Paul
 R. Bryan Rock — Hennepin Healthcare, Minneapolis
 John W. Wilson — Mayo Clinic, Rochester

New Jersey

Alfred A. Lardizabal — Global Tuberculosis Institute at Rutgers New Jersey Medical School, Newark

New Mexico

Marcos Burgos — New Mexico Department of Health, Santa Fe
 Brenda Montoya Denison — New Mexico Department of Health, Santa Fe

North Carolina

Bill Cleve — Vidant Medical Center, Greenville
 Savannah Conley — Wake County Public Health Center, Raleigh
 Paul Cook — Brody School of Medicine at East Carolina University, Greenville
 Rachael Cope — Iredell County Health Department, Statesville

Leigh C. Cutler — Pitt County Public Health Center, Greenville
 William A.B. Dalzell — Brody School of Medicine at East Carolina University, Greenville
 Darlene Farmer — North Carolina Department of Health & Human Services, Raleigh
 Susan E. Fawcett — Vidant Medical Center, Greenville
 Lynn Hill — North Carolina Department of Health & Human Services, Raleigh
 Daniela K. Ingram — North Carolina Department of Health & Human Services, Raleigh
 Rose R. Kornegay — Duplin County Health Department, Kenansville
 Sharon Owens — Craven County Health Department, New Bern
 Keith M. Ramsey — Vidant Medical Center and Brody School of Medicine at East Carolina University
 Brittany Richo — North Carolina Department of Health & Human Services, Raleigh
 Jason E. Stout — Duke University Medical Center, Durham
 Jennifer B. Wheeler — North Carolina Department of Health & Human Services, Raleigh

Ohio

Kim Biery — Miami Valley Hospital Premier Health, Dayton
 Steven D. Burdette — Miami Valley Hospital Premier Health, Dayton
 Holly J. Byall — Cleveland Clinic Akron General, Akron
 Roberto Colon — Miami Valley Hospital Premier Health, Dayton
 Chasidy Davis — Highland County Health Department, Hillsboro
 Donald M. Dumford III — Cleveland Clinic Akron General, Akron
 Christa Easton — Hamilton County Public Health, Cincinnati
 Rachel Flossie — Summit County Public Health, Akron
 Emily Hoisington — Darke County General Health District, Greenville
 April Justice — Ohio Department of Health, Columbus
 Sarah Mitchell — Ohio Department of Health, Columbus
 Marika C. Mohr — Ohio Department of Health, Columbus
 Erin Onder — Western Reserve Hospital, Cuyahoga Falls
 Dave Orskey — Mayfield Spine Surgery Center, Cincinnati
 Belinda Reilly — Miami County Public Health, Troy
 Sara Stokes — Ohio Department of Health, Columbus
 Julia Toy — Mayfield Spine Surgery Center, Cincinnati
 Gary Trentman — Ohio Department of Health, Columbus
 Martha Walter — Hamilton County Public Health, Cincinnati

Oregon

Kiley Ariail — Oregon Public Health Division, Portland
 Heidi Behm — Oregon Public Health Division, Portland
 Rebecca Pierce — Oregon Public Health Division, Portland

Pennsylvania

Bureau of Communicable Diseases, Pennsylvania Department of Health

South Dakota

Kristin Rounds — South Dakota Department of Health, Pierre
 Kipp Stahl — South Dakota Department of Health, Pierre

Texas

Lisa Y. Armitige — Heartland National TB Center, San Antonio
 Shawna Blasingame — Texas Department of State Health Services, Austin
 Juanita M. Mathis — Houston Health Department
 Patrick O. Ndibe — Houston Health Department
 Charlene Offiong — Houston Health Department
 Richard Stancil — Houston Health Department
 David J. Tweardy — MD Anderson Cancer Center, Houston

Virginia

Taniqua Day — Inova Health System, Falls Church
 Jasie L. Hearn — Virginia Department of Health, Richmond
 Sarah F. Lineberger — Virginia Department of Health, Richmond
 Scarlett Murray — Loudoun County Health Department, Leesburg

Michelle Peninger — Inova Health System, Falls Church
 Tina Poore — Inova Health System, Falls Church
 Kelley Schultz — Inova Health System, Falls Church
 Carolyn Simpson — Loudoun County Health Department, Leesburg
 Laura R. Young — Virginia Department of Health, Richmond

Washington

Monica L. Czaplá — Clark County Public Health, Vancouver
 Marisa D'Angeli — Washington State Department of Health, Shoreline
 Catherine Kroll — PeaceHealth, Vancouver
 Monica Pecha — Washington State Department of Health, Shoreline
 Sara Podczervinski — Washington State Department of Health, Shoreline

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services, National Veterinary Services Laboratories, Ames, Iowa

Kimberly A. Lehman
 David J. Schwebs
 Tyler C. Thacker

U.S. Food and Drug Administration, Center for Biologics Evaluation and Research, Office of Tissues and Advanced Therapies, Division of Human Tissues, Silver Spring, Maryland

Scott A. Brubaker
 Brychan Clark

U.S. Centers for Disease Control and Prevention, Atlanta, Georgia

Leeanna E. Allen — Division of Tuberculosis Elimination
 Sandy P. Althomsons — Division of Tuberculosis Elimination
 Pallavi Annambhotla — Division of Healthcare Quality Promotion
 Sapna Bamrah Morris — Division of Tuberculosis Elimination
 Sridhar V. Basavaraju — Division of Healthcare Quality Promotion
 Isaac Benowitz — Division of Healthcare Quality Promotion
 Bruce Bradley — Division of Tuberculosis Elimination
 Lauren S. Cowan — Division of Tuberculosis Elimination
 Tracina Cropper — Division of Tuberculosis Elimination
 Molly Deutsch-Feldman — Division of Tuberculosis Elimination and Epidemic Intelligence Service
 Thomas D. Filardo — Division of Tuberculosis Elimination and Epidemic Intelligence Service
 Rebecca J. Free — Division of Healthcare Quality Promotion
 Janet Burton Glowicz — Division of Healthcare Quality Promotion
 Maryam B. Haddad — Division of Tuberculosis Elimination
 Alfonso C. Hernandez-Romieu — Division of Healthcare Quality Promotion and Epidemic Intelligence Service
 Bonnie Herring — Division of Healthcare Quality Promotion
 Adam J. Langer — Division of Tuberculosis Elimination
 Ruoran Li — Division of Healthcare Quality Promotion and Epidemic Intelligence Service
 Philip LoBue — Division of Tuberculosis Elimination
 Angelica Martinez — Division of Tuberculosis Elimination
 Clinton J. McDaniel — Division of Tuberculosis Elimination
 Kalandra McDaniel — Division of Tuberculosis Elimination
 Robert H. Pratt — Division of Tuberculosis Elimination
 Shanica Railey — Division of Tuberculosis Elimination
 Kala M. Raz — Division of Tuberculosis Elimination
 Noah G. Schwartz — Division of Tuberculosis Elimination and Epidemic Intelligence Service
 Angela M. Starks — Division of Tuberculosis Elimination
 Rebekah J. Stewart — Division of Tuberculosis Elimination
 Sarah Talarico — Division of Tuberculosis Elimination
 W. Wyatt Wilson — Division of Healthcare Quality Promotion and Epidemic Intelligence Service
 Jonathan M. Wortham — Division of Tuberculosis Elimination

Supplementary methods

Real-time polymerase chain reaction (rt-PCR) and culture

Approximately 100 mg of the bone allograft material was transferred to a screw-top tube containing 400 μ L 1x TE with 100 μ L 1.0 mm and 200 μ L 0.1 mm glass beads along with an extraction control. The sample was heat inactivated and then homogenized using a BioSpec Beadbeater as recommended by the manufacturer. Deoxyribonucleic acid (DNA) was isolated, and the presence of the *M. tuberculosis* complex DNA was detected using a real-time polymerase chain reaction (PCR) assay that amplifies the *IS1081* and *IS6110* insertion elements. The remaining material was homogenized in 7 mL sterile phosphate-buffered saline (PBS) using a gentleMacs Tissue Homogenizer. The soluble portions of the samples were centrifuged to pellet any potential mycobacteria in the sample. The supernatant was decanted, and the pellet resuspended in 3 mL sterile PBS. 400 μ L was used to inoculate BD BACTEC Mycobacterial Growth Indicator Tube (MGIT) media in duplicate. 1.5 mL of 800 μ g/mL erythromycin was added to the MGIT PANTA dry mix supplied in the BACTEC MGIT Supplement Kit. Then 15 mL of the reconstituting fluid was added to the PANTA/erythromycin mix. 0.8 mL of the reconstituted PANTA/erythromycin mix was added to each MGIT tube. Using a swab, commercially available solid media (Stonebrinks, Lowenstein-Jensen, and Mycobactosol-Lowenstein-Jensen) and in-house prepared solid media (7H11 with pyruvate and 7H11 with glycerol) were inoculated.

Whole-genome sequencing and phylogenetic analysis

Nextera XT sequencing libraries were sequenced (2 x 150 bp reads) on the NextSeq 500 platform using NextSeq 500/550 Mid Output Kit v2.5 300 cycle chemistry. Samples with a sequence read set Q30 frequency <85% were re-sequenced. Reference-guided assemblies were created using BioNumerics 7.6 Reference Mapper v 1.2.3 using *M. tuberculosis* strain H37Rv (NC00962.3) as the reference with the following settings for base calling: minimum total coverage=3, minimum forward coverage=1, minimum reverse coverage=1, single base threshold=0.75, double base threshold=0.85, triple base threshold=0.95, gap threshold=0.5. A bowtie-based algorithm was used.¹ Samples with an average genome coverage <25 were re-sequenced. Reference-guided assembly samples were compared using BioNumerics 7.6 single nucleotide polymorphism (SNP) analysis filters. For a SNP to be retained in the comparison, the base in all samples must have had a total coverage of 5 reads, must not have contained ambiguous bases, must not have contained unreliable bases, must not have contained gaps, and must not have been within 12 base-pairs of another SNP. SNPs that were non-informative (identical in all samples) were also excluded. The comparison was visualized using a phylogenetic tree constructed using the neighbor-joining method. *M. tuberculosis* strain H37Rv was used as the outgroup and the phylogenetic tree was rooted at the midpoint of the longest branch.

Molecular Detection of Drug Resistance (MDDR)

CDC's National Tuberculosis Reference Laboratory performed Sanger DNA sequencing to assess an *M. tuberculosis* isolate from unused bone allograft material for genetic mutations associated with resistance to rifampin, isoniazid, ethambutol, pyrazinamide, fluoroquinolones, kanamycin, capreomycin, and amikacin. Loci were sequenced in the following genes: *rpoB* (associated with rifampin resistance); *inhA*, *katG*, and *fabG1* (associated with isoniazid resistance); *embB* (associated with ethambutol resistance); *pncA* (associated with pyrazinamide resistance); *gyrA* and *gyrB* (associated with fluoroquinolone resistance); *rrs* (associated with resistance to kanamycin, amikacin, and capreomycin), *tlyA* (associated with capreomycin resistance), and *eis* (associated with kanamycin resistance). Detailed methods and performance characteristics are described in a previously published, publicly available guide.²

Growth-based drug susceptibility testing

CDC's National Tuberculosis Reference Laboratory used an indirect agar proportion method (Middlebrook 7H10 agar) to test an *M. tuberculosis* isolate from unused bone allograft material for susceptibility to 12 drugs: isoniazid, rifampin, ethambutol, ciprofloxacin, ofloxacin, streptomycin, kanamycin, capreomycin, amikacin, rifabutin, ethionamide, and para-aminosalicylic acid. Resistance was defined as >1% growth on drug-containing medium compared to drug-free medium. Pyrazinamide susceptibility was tested using the BD BACTEC MGIT 960 system.

Supplementary tables

Table S1. Evidence of surgical site tuberculosis disease in bone allograft recipients

	No.	No. with available data	Percentage of all 113 recipients	Percentage of recipients with available data
Microbiologic or imaging evidence	83	106	73%	78%
Microbiologic evidence	54	63	48%	86%
Positive AFB smear	40	61	35%	66%
Positive NAAT	31	44	27%	70%
Positive culture	51	58	45%	88%
Imaging evidence	80	106	71%	75%
Abscess or fluid collection	69	106	61%	65%
Osteomyelitis	36	106	32%	34%
Discitis	18	106	16%	17%
Meningeal enhancement (without clinical signs or symptoms of meningitis)	2	106	2%	2%
Other abnormality compatible with tuberculosis	3	106	3%	3%

AFB=acid-fast bacilli. NAAT=nucleic acid amplification test.

Table S2. Evidence of pulmonary tuberculosis disease in bone allograft recipients

	No.	No. with available data	Percentage of all 113 recipients	Percentage of recipients with available data
Microbiologic or imaging evidence	27	110	24%	25%
Microbiologic evidence	13	58	12%	22%
Positive AFB smear	4	58	4%	7%
Positive NAAT	11	51	10%	22%
Positive culture	11	56	10%	20%
Imaging evidence	23	110	20%	21%
Miliary lesions	13	110	12%	12%
Multifocal nodular lesions	19	110	17%	17%
Cavitary lesions	3	110	3%	3%

AFB=acid-fast bacilli. NAAT=nucleic acid amplification test.

Table S3. Evidence of central nervous system tuberculosis disease in bone allograft recipients

	No.	No. with available data	Percentage of all 113 recipients	Percentage of recipients with available data
Microbiologic or imaging evidence	3*	10	3%	30%
Microbiologic evidence	1	5	1%	20%
Positive AFB smear	0	5	0%	0%
Positive NAAT	1	3	1%	33%
Positive culture	1	3	1%	33%
Imaging evidence	3	8	3%	38%
Brain tuberculomas	2	8	2%	25%
Leptomeningeal enhancement of the cervical spine (with clinical signs and symptoms of meningitis)	1	8	1%	13%

AFB=acid-fast bacilli. NAAT=nucleic acid amplification test.

* One additional patient had clinically diagnosed tuberculous meningitis based on cerebrospinal fluid cell counts and chemistries.

Table S4. Evidence of tuberculosis disease at other anatomic sites in bone allograft recipients

	No.	No. with available data*	Percentage of all 113 recipients	Percentage of recipients with available data*
Positive blood culture	3	5	3%	--
Positive culture of liver specimen	1	2	1%	--
Positive culture of bone marrow specimen	1	2	1%	--

*For the anatomic sites in this table, negative test results were not systematically reported so percentages among recipients with available data were not calculated.

Supplementary references

1. Pouseele H, Supply P. Accurate whole-genome sequencing-based epidemiological surveillance of *Mycobacterium tuberculosis*. In: Sails A, Tang Y-W, ed. *Methods in Microbiology*, Vol 42. Cambridge, MA: Academic Press, 2015: 359-394. <https://doi.org/10.1016/bs.mim.2015.04.001>
2. Centers for Disease Control and Prevention. Laboratory user guide for U.S. public health laboratories: Molecular Detection of Drug Resistance (MDDR) in *Mycobacterium tuberculosis* complex by DNA sequencing (version 2.0). <https://www.cdc.gov/tb/topic/laboratory/mddrusersguide.pdf> (accessed October 1, 2021).