



Elephant Care International (ECI)
www.elephantcare.org

February 14, 2011

An Open Letter on Elephant Tuberculosis (TB) Issues

To veterinarians, elephant managers, zoo directors,
and elephant range country professionals

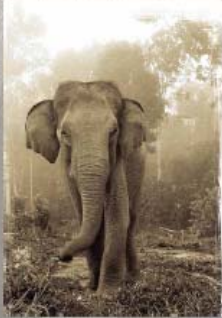
An unsigned PDF at the Elephant Manager's Association (EMA) website (USA) was posted as a "Summary of Fourth Annual Tuberculosis and Elephants Workshop Nov. 3-4, 2010 at Ringling Center for Elephant Conservation, Polk City, Florida" (hereafter referred to as *Workshop*).

Elephant Care International, long dedicated to the mission of establishing successful methods of diagnosis and treatment of elephants for TB, finds it necessary to comment on the *Workshop's* perspectives and recommendations. In our professional opinion, the *Workshop's* assessment is incomplete and, in some cases, inaccurate. Key discrepancies between the *Workshop's* statement of current knowledge and published evidence are detailed below. It is our further opinion that the *Workshop's* misapprehension of current knowledge regarding the successful treatment of elephants for TB has led to its troubling conclusions. The USAHA Guidelines For The Control Of Tuberculosis In Elephants 2008 (and 2010 pending) were established by rigorous, peer-reviewed study and experience. These guidelines are based on fully vetted clinical strategies to limit the risk of transmission of the disease, whether to other elephants or humans. Given the devastating effect of TB on elephants and its risk to human health, we believe that compliance with these guidelines is the single responsible course of action for institutions holding elephants

Elephant TB in the U.S. (1994-2010)

50 culture positive:

- 46 Asian (*M.tb*)
- 3 African (*M.tb*)
- 1 African *M.bovis*)



- 31 dx antemortem
- 19 dx postmortem

- 3 cases *M. szulgai*

Since 2005, the **Elephant Care International TB Initiative** (summarized [below](#)) has sought to provide accurate information and improve the diagnosis and treatment of TB, especially in range countries. We encourage you to utilize our open access resources for the latest news about elephant TB issues and our field activities.

TB is an insidious disease amongst elephants, often infecting 15-25 percent of populations studied to date. It is our opinion that surveillance of and treatment for TB must not be delayed. Please see the table below for our perspectives on the

management of TB in elephants vs. those of the *Workshop*.

For additional detailed information, please see [Current and Future Technologies to Manage TB in Elephants](#) a PDF of an invited PowerPoint presentation given by Dr. Susan Mikota at the University of Georgia, College of Veterinary Medicine, January 2011. (Caution 4MB file, opens slowly)

Checking the Facts

<p>Source(s) of quotes below: all ultimately lead to same material</p> <p>http://www.elephant-managers.com/TB%20Workshop%20summary.pdf accessed 12/28/2010 and Feb. 14, 2011 author not stated</p> <p>and http://www.elephant-managers.com/TB Workshop summary.pdf accessed via Google search for Summary of Fourth Annual Tuberculosis and Elephants Workshop Nov. 3-4, 2010 at Ringling Center for Elephant Conservation, Polk City, Florida - on Feb/11/2011</p> <p>and at http://www.elephant-managers.com/Gray Matters Nov-Dec 2010.pdf accessed Feb/11/2011, also from Google search above</p>	<p>Reality</p>
<p>...survey identified 17 elephants treated for Tb after having positive trunk wash cultures. Out of those animals, 14 of the 16 with serious side effects were affected badly enough that treatment was stopped...</p>	<p>TB is a serious, chronic disease requiring strong drugs for treatment in humans and elephants, While side effects are possible and can be severe, the alternative (death and continued spreading of disease) is not acceptable.</p> <p>We are not aware of a peer-reviewed article that supports the statement at left.</p> <p>While details are not provided and thus cannot be verified, the statement at left is highly subjective and we cannot know how “serious” the side effects were. It is not uncommon for some loss of appetite to occur, which is readily resolved after a brief respite from the drugs and treatment is then resumed. Dr. Susan Mikota has overseen the treatment of at least 39 elephants for TB and serious complications were rarely observed.</p>
<p>...discussed the fact that current treatment outlined in the U.S. Department of Agriculture (USDA) mandated...</p>	<p>The USDA does not mandate treatment. The decision is the attending vets. Quarantine is always an option and alternatives to the Guidelines can be submitted for consideration.</p>

<p>based on out-of-date human guidelines from 1994</p>	<p>Treatment Guidelines for elephants have been based on current human TB treatment recommendations and are reviewed each time the Guidelines are updated (2000, 2003, 2008, 2010). Changes are made when scientifically-supported information becomes available. The USAHA Elephant TB subcommittee requests and welcomes information from veterinarians within the elephant community to improve treatment recommendations.</p>
<p>elephant had severe reactions to the Tb treatment drugs and subsequently died.</p>	<p>We are familiar with this case. It is our understanding that this elephant was serologically positive on the ElephantTBStat-Pak Assay® and the MAPIA but was culture negative before treatment was initiated. The immediate cause of death was cardiac failure and TB was not isolated post-mortem. In the absence of a positive culture pre-mortem we will never know for sure in this case whether the serological tests were falsely positive or whether the ~9 months of treatment that this elephant received was curative.</p>
<p>On post-mortem no signs of Tb were found.</p>	<p>The elephant had been treated for TB. It is the goal of treatment to remove TB, so not finding TB at necropsy would not be unexpected. This could just as easily be pointed to as proof that treatment was successful, vs. to surmise that the diagnostic test was faulty. Further, a necropsy is selective and depends a great deal on the thoroughness of the procedure, tissues selected, and the samples submitted. Like the trunk wash for culture of elephants, if TB is found, the elephant is infected, but not finding TB cannot prove that the elephant is not infected. False negatives occur frequently.</p>
<p>clearly raises significant concerns about the validity of initiating Tb treatment only based on a serology test</p>	<p>Chembio Diagnostic Systems, Inc.'s ElephantTB STAT-PAK® Assay was licensed by the USDA in 2007. (U.S. Veterinary License No. 645) as a TB screening tool, not a stand-alone and definitive diagnostic test.</p> <p>In addition, the Chembio MAPIA™ is now recommended by the current USAHA-approved elephant TB Guidelines for confirmatory testing.</p> <p>Treatment or alternative options may be explored by the attending veterinarian taking into account all available information on the elephant, not only serology results.</p> <p>It should be considered that delaying treatment may allow TB disease to progress and other elephants or humans to become infected. . A major Swedish study¹ proves the utility of serology (five elephants, all positive by serology, all with proven active TB at necropsy and yet only 7 of 189 trunk washes were positive)</p>

	<p>¹ Moller, T., Roken, B., Petersson, L., Vitaud, C., and Lyashchenko, K. Preliminary results of a new serological test for detection of TB-infection (<i>Mycobacterium tuberculosis</i>) in elephants (<i>Elephas maximus</i> and <i>Loxodonta africanum</i>) - Swedish Case studies. 2005. Verh.ber.Erkrq.Zootiere. 42, 173-181.</p>
<p>consensus, from experienced veterinarians and Tb researchers present at the workshop</p>	<p>This was an invited-only workshop. Many recognized leaders in TB research and treatment were not invited. Results as summarized in the EMA article may not be supported by the scientists and elephant veterinarians that were excluded or accurately representative of those that were in attendance.</p>
<p>prior to relying on such tests, there needs to be further study</p>	<p>“If we wait—It is too late” Dr. Julie Gerberding (Past) Director CDC (Center for Disease Control)</p> <p>Adequate documentation and peer review support the tests. Current guidelines also recognize exposure history as a factor to be considered.</p>
<p>... potential occupational health risk for people who work with elephants... there is a need for scientifically accurate information in order to have this discussion.</p>	<p>There were eight TB conversions at one facility in 2009 – While more studies will add to our knowledge, TB is a zoonotic disease and risks (especially to staff) have clearly been documented.</p>
<p>Only 3% of humans develop clinical Tb (when infected). * 90% of people with Tb are not shedding and are not a hazard, which may be similar in elephants.</p>	<p>This report makes a highly speculative association... while neglecting to inform that U.S. policy is to <u>treat</u> all humans with latent TB to prevent the unpredictable development of active TB. No one can predict if and when shedding will begin and there is no proof that latent TB exists in elephants.</p>

Elephant Care International TB Initiative

Elephant Care International (ECI) began its [Elephant TB Initiative](#) in 2005. The initiative is a comprehensive, long-term study of TB in elephants to: 1) validate diagnostic techniques, 2) improve treatment methods, 3) establish a surveillance system and database, and 4) with a goal to survey all Asian elephant range countries for TB by 2015. Dr. Susan Mikota heads this project assisted by a professional [Elephant TB Scientific Advisory Board](#).

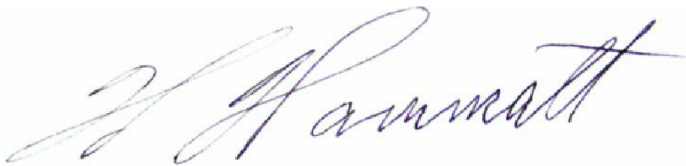
AZA Zoos and zookeepers have assisted us with support and we have made several presentations on our progress at ZACC (Zoos and Aquariums Committed to Conservation) and AAZV (American Association of Zoo Veterinarians meetings).

In addition to providing extensive resources through our open access website, ECI operates a major hands-on elephant TB management program in [Nepal](#), funded a major project in [India](#) (which surveyed more than 500 elephants for TB and other health issues), and has supported elephant TB researchers in Sri Lanka and Tanzania. In addition to her position at Elephant Care International, Dr. Mikota has overseen the treatment of more than 39 elephants for TB, was a founding member of the first U.S. TB Working Group, and is an Adjunct Professor at Michigan State University, where she lectures students on field conservation issues and TB in elephants.

Dr. Susan Mikota and Hank Hammatt are members of the Asian Elephant Specialist Group and Dr. Mikota is also a member of the Wildlife Health Specialist Group. These specialist groups serve as species or subject advisory groups to the IUCN (International Union for Conservation of Nature).

See also:

[Elephant Tuberculosis: Frequently Asked Questions](#)
[TB References: Elephant Care International](#)

A handwritten signature in blue ink that reads "H Hammatt". The signature is fluid and cursive, with the first name "Hank" being more prominent than the last name "Hammatt".

Hank Hammatt
Executive Director
Elephant Care International