of Tropical Medicine, the World Health Organization Collaborating Centre for the Diagnosis and Surveillance of Mycobacterium ulcerans Infection by IS2404 PCR and biochemical tests (online Table, available from http://www.cdc.gov/ncidod/EID/vol11no11/05-0234.htm#table).

DNA extracted from cultures by 3 freeze-boiling cycles was used for amplification, according to the protocol described by Leao et al. (10). Gel images were analyzed by using GelCompar II v. 2.5 (AppliedMaths, Sint-Martens-Latem, Belgium). Two distinct M. ulcerans PRA-hsp65 patterns were identified. Of 36 strains, 34 had a PRA-hsp65 pattern indistinguishable from that of M. marinum [BstEII and HaeIII (bp) of 235/210/0 and 145/105/80] at the Swiss PRASite (http://app.chuv.ch/prasite/index.html). Two strains, 1 each from Japan and China, showed a different pattern [BstEII and HaeIII (bp) of 235/210/0 and 190/105/80], that described by Devallois et al. (6).

We have shown that PRA-hsp65 analysis performed on several M. ulcerans strains from different geographic areas produced different patterns. In fact, the unique PRA-hsp65 profile of the M. ulcerans strain previously published (6) was the most rarely found pattern among the profiles found in this study. This work helps to clarify the PRA-hsp65 patterns of M. ulcerans found in different countries. Because the epidemiology of Buruli ulcer is poorly understood, new molecular tools are still needed to differentiate M. ulcerans from different geographic settings, mainly in Africa, where the disease is more prevalent. The PRA-hsp65 method represents a rapid, easy, and inexpensive technique to differentiate M. shinshuense from M. ulcerans and M. marinum.

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References

1. Asiedu K, Scherpier R, Raviglione M, editors. Buruli ulcer. Mycobacterium ulcerans infection. Geneva: The World Health Organization; 2000.
2. Buntine J, Crofts K, editors. Buruli ulcer. Management of Mycobacterium ulcerans disease. Geneva: The World Health Organization; 2001.
3. Tsukamura M, Kaneda K, Imaeda T, Mikoshiba H. [A taxonomic study on a mycobacterium which caused a skin ulcer in a Japanese girl and resembled Mycobacterium ulcerans]. Kekkaku. 1989;64:691–7.
4. Roth A, Fischer M, Hamid ME, Michalke S, Ludwig W, Mauch H. Differentiation of phylogenetically related slowly growing mycobacteria based on 16S-23S rRNA gene internal transcribed spacer sequences. J Clin Microbiol. 1998;36:139–47.
5. Portaels F, Fonteyne PA, de Beenhouwer H, de Rijck P, Guederon A, Hayman J, et al. Variability in 3′ end of 16S RNA sequence of Mycobacterium ulcerans is related to geographic origin of isolates. J Clin Microbiol. 1996;34:962–5.
6. Devallois A, Goh KS, Rastogi N. Rapid identification of mycobacteria to species level by PCR-restriction fragment length polymorphism analysis of the hsp65 gene and proposition of an algorithm to differentiate 34 mycobacterial species. J Clin Microbiol. 1997;35:2969–73.
7. Stinear T, Ross BC, Davies JK, Marino L, Robins-Browne RM, Oppedisano F, et al. Identification and characterization of IS2404 and IS2606: two distinct repeated sequences for detection of Mycobacterium ulcerans by PCR. J Clin Microbiol. 1999;37:1018–23.
8. Stragier P, Ablordey A, Meyers WM, Portaels F. Genotyping Mycobacterium ulcerans and Mycobacterium marinum using mycobacterial interspersed repetitive units. J Bacteriol. 2005;187:1639–47.
9. Chemlal K, Huys G, Laval F, Vincent V, Savage C, Gutierrez C, et al. Characterization of an unusual Mycobacterium: a possible missing link between Mycobacterium marinum and Mycobacterium ulcerans. J Clin Microbiol. 2002;40:2370–80.
10. Leao SC, Bernardelli A, Cataldi A, Zumarraga M, Robledo J, Reapel T, et al. Multicenter evaluation of mycobacteria identification by PCR restriction enzyme analysis in laboratories from Latin America and the Caribbean. J Microbiol Methods. 2005;61:193–9.

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Spelling of Emerging Pathogens

To the Editor: Language is about comprehension; provided the parties in a discussion can understand each other, variations in pronunciation of individual words may be tolerated or disregarded. In modern English, numerous examples of variant pronunciations exist that cause no problems of comprehension (e.g., either, tomato, laboratory, fertile). These arise from several causes; regional practice is likely the most important factor, but the speaker’s education and social background, personal preferences, and even etymologic theories also play a part. It would be futile and, some would feel, undesirable to attempt to impose uniformity by prescribing approved pronunciations if communication is not endangered. Moreover, both language and pronunciation are subject to constant change. The same is not true regarding the spelling of organisms’ names.
Although we accept variation in pronunciation, we should not accept variation in the spelling of binomial names. Common spelling variants and the citation frequency (PubMed) of 4 organisms, \textit{Acinetobacter baumannii}, \textit{Coccidioides immitis} (the fungal causal agent of coccidioidomycosis), \textit{Coxiella burnetii} (the causal agent of Q fever), and \textit{Tropheryma whipplei} (the causal agent of Whipple disease), are detailed in the Table. Common spelling mistakes occur with double letters (e.g., nn, ii), as well as complicated strings of consecutive vowels (e.g., \textit{Coccidioides}). However, a defense to such criticism is that various authors have adopted the spelling of a previous taxonomic description that has become outdated, e.g., \textit{C. burnetti} (previous) and \textit{C. burnetii} (current). Historic change in the spelling of these names is the primary reason they are published and cited in PubMed with different spellings. However, even disregarding historic taxonomic variants, \(\approx 14.8\%\) of \textit{Tropheryma whipplei}, \(\approx 14.3\%\) of \textit{Acinetobacter baumannii}, \(\approx 12.3\%\) of \textit{Coxiella burnetii}, and \(\approx 1.9\%\) of \textit{Coccidioides} citations are spelled incorrectly in PubMed. These relatively large percentages may mean that relevant literature is overlooked in searches.

Authors should be aware that previous taxonomic spelling of binomial names exist and check their historic evolution in the List of Prokaryotic Names with Standing in Nomenclature (www.bacterio.cict.fr). Authors should cite previous spelling when such a change has been recent and they may wish to include previous spellings in literature searches. Additionally, the most current and formally accepted spelling must be used when preparing a manuscript for publication.

The origins of incorrect and variant spellings of binomial names may lie in an array of sources, including original mispronunciation with subsequent incorrect phonetic transcription. Written language is rarely a phonetic transcript of vocal acoustics, however, it interfaces with several factors that prevent us from spelling words the way they sound. Orthography, which promotes the practice of writing words with the proper letters according to standard usage and conventionally correct spelling, is further complicated by the use of Greek or Latin words, each with their own linguistic peculiarities.

Table. Common spellings of binomial names of organisms*

| Organism name [no. citations in PubMed]* | Spelling variants [no. citations in PubMed] | Date official spelling first described |
|-----------------------------------------|------------------------------------------|------------------------------------|
| \textit{Acinetobacter baumannii} [844]  | A. baumannii [117] A. baumanii [16]      | 1986†                               |
| \textit{Coccidioides} [1,209]           | Coccidioides [17] Coccidioides [4]       | 1896§                               |
| \textit{Coxiella burnetii} [1,531]      | C. burnetii [374] C. burnetii [199]      | 1960§                               |
| \textit{Tropheryma whipplei} [52]       | T. whipplei [118] T. whipplei [5]        | 2001#                               |

*Organism name in List of Bacterial Names with Standing in Nomenclature; search conducted June 2005.
†Approved name described by Bouvet and Grimon (ref 1).
‡Coccidioides is not a bacterium but a fungus; however, this name is described in the Index Fungorum.
§First described by Stiles (ref 2).
¶Approved name described by Skerman et al. (ref 3); first described by Derrick (ref 4) as \textit{Rickettsia burnetti}, the cause of Q fever.
#Approved names described by La Scola et al. (ref 5); 1992, Relman et al. (ref 6) tentatively proposed the name “\textit{T. whipplei}.”

Although we may not be able to standardize phonetic pronunciation of binomial names locally, nationally, or internationally, we should be constantly conscious of their spelling. As authors and peer reviewers, we should strive to achieve uniformity in written media to promote enhanced communication with our peers in infectious diseases.

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References

1. Bouvet PJM, Grimon PAD. Taxonomy of the genus \textit{Acinetobacter} with the recognition of \textit{Acinetobacter baumannii} sp. nov., \textit{Acinetobacter haemolyticus} sp. nov., \textit{Acinetobacter johnsonii} sp. nov., and \textit{Acinetobacter junii} sp. nov. and amended descriptions of \textit{Acinetobacter calcoaceticus} and \textit{Acinetobacter lwoffii}. Int J Syst Bacteriol. 1986;36:228–40.
2. Stevens DA. Coccidioidomycosis. N Engl J Med. 1995;332:1077–82.
3. Skerman VBD, McGowan V, Sneath PHA. Approved lists of bacterial names. Int J Syst Bacteriol. 1980;30:225–420.
4. Derrick EH. \textit{Rickettsia burnetti}: the cause of Q-fever. Med J Aust. 1939;1:1:14.
5. La Scola B, Fenollar F, Fournier PE, Altwegg M, Mallet MN, Raoul D. Description of \textit{Tropheryma whipplei} gen. nov., sp. nov., the Whipple’s disease bacillus. Int J Syst Evol Microbiol. 2001;51:1471–9.
6. Relman DA, Schmidt TM, MacDermott RP, Falkow S. Identification of the uncultured bacillus of Whipple’s disease. N Engl J Med. 1992;327:293–301.

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