REVIEW ARTICLE

CONTENTS

The use of eponymic bacterial nomenclature in medical case reports: Etymology and morphological models

Yuliia Lysanets[1], Olena Bieliaieva[1], Olena Uvarkina[2], Mariia Hutsol[3]

[1]POLTAVA STATE MEDICAL UNIVERSITY, POLTAVA, UKRAINE

[2]NATIONAL TECHNICAL UNIVERSITY OF UKRAINE "IGOR SIKORSKY KYIV POLYTECHNIC INSTITUTE", KYIV, UKRAINE

[3]IVANO-FRANKIVSK NATIONAL MEDICAL UNIVERSITY, IVANO-FRANKIVSK, UKRAINE

ABSTRACT

Aim: To provide healthcare professionals with relevant guidelines for the accurate utilization and comprehension of the origins of eponymic bacterial names when engaging in the genre of MCRs.

Materials and Methods: We examined the prevalence of eponymic names of bacteria in the issues of Journal of Medical Case Reports (2007 – 2025) and identified the key patterns of using bacterial nomenclature in this genre. The chosen terminological units underwent assessment through quantitative analysis, structural evaluation, etymological analysis, and contextual examination.

Conclusions: The appropriate use of bacterial nomenclature in medical case reports is paramount for the effective communication of clinical findings to colleagues across the globe. It also serves as a means to showcase one's competence and education in the field. Therefore, it becomes imperative to bring this terminological phenomenon to the attention of students, highlighting its prevalence in contemporary medical case reports.

KEYWORDS: medical terminology, eponym, bacterial nomenclature, medical case report

Wiad Lek. 2026;79(9):2255-2264. doi: 10.36740/WLek/222261 DOI

INTRODUCTION

Medical eponyms are named after individuals who have made significant contributions to their discovery or understanding [1]. They are an essential component of the medical lexicon, serving as a reflection of the evolving stages of our understanding of reality, historical contexts, and the contributions of individuals to the advancement of medical science [2]. Eponyms find extensive use in the medical discourse for several reasons: they unveil the progression of medical research and practice, foster the continuity of scientific knowledge, and contribute significantly to the development of terminological competence among medical students [3]. Medical eponyms are widely used in virtually all areas of clinical and theoretical medicine, and such terms as "Alzheimer's disease", "Parkinson's disease" [4, 5], "Devic's opticomyelitis" [6], etc., clearly indicate the homage to the prominent scientists and their achievements. At the same time, while some derivations may seem quite apparent, there are numerous terms where the eponymic etymology is not immediately transparent [7]. In our previous study, we drew attention to such terms as "*Bordetella avium*" and "*Raoultella planticola*" [8], derived from the names of the Belgian immunologist and microbiologist Jules Bordet and the French bacteriologist Didier Raoult, respectively [7]. Consequently, awareness of these terms' etymology can prevent their incorrect spelling and use in the written discourse [7]. However, despite their significance, the characteristics and prevalence of eponyms in bacterial nomenclature have remained relatively unexplored, with only a few studies in this field so far [9, 10]. Therefore, our study seeks to bridge this research gap, enhancing the understanding of this terminological phenomenon among both medical professionals and linguists. Hence, the interdisciplinary nature of this research is evident.

We believe that the etymological study of eponymic bacterial names constitutes an essential component of a student's well-rounded medical education [11]. Moreover, it provides a practical tool to enhance student motivation, as delving into eponyms aids in grasping the origins of medical terms, thereby facilitating better

memory retention [12, 13]. This paper will also focus on the morphological models of eponymic bacterial nomenclature. In particular, we will emphasize the significance of mastering the key principles of Greek and Latin grammar, thereby ensuring correct spelling and punctuation when working with these terminological units.

Our prior research has comprehensively substantiated the paramount role of Greek and Latin terminologies in shaping all modern European languages, with an undeniable influence on the specialized language of medicine, particularly in English [14-18]. In the areas of modern medicine and biological sciences, the language of Latin and Greek, ancient and enduring, continues to exert its profound influence [19-21]. For instance, such bacterial names as *Kocuria rosea, Kocuria kristinae, Streptococcus mutans, Streptococcus sorbinus, Leuconostoc mesenteroides* [22, 23] or *Moraxella catarrhalis, Chlamydia pneumoniae* [24] obviously retain the traditional elements of Latin grammar in the species part of the term. Moreover, such modern terms as "leptin" [25] or "cathepsin" [26], coined in the 20th century, largely rely on the Greek lexicon. This fusion of ancient vocabulary with contemporary discoveries highlights the enduring legacy of Latin and Greek in the field of medical nomenclature. In other words, classical languages are widely used to name new phenomena in medicine and biology nowadays. In this study, we will demonstrate how the Greek and Latin naming conventions for bacterial species and genera follow a systematic structure, with genus names serving as the broader category and species names providing specific descriptors or associations. This binomial nomenclature helps maintain order and clarity in the field of microbiology and taxonomy.

We will focus on this terminological phenomenon in medical case reports (MCRs) because of the paramount importance of this genre, which proves highly effective for the global dissemination of scientific knowledge [27]. Consequently, it is essential to study the prevalence and contemporary usage of eponymic bacterial nomenclature within modern MCRs. This research endeavor aims to provide healthcare professionals with relevant guidelines for the accurate utilization and comprehension of the origins of eponymic bacterial names when engaging in the genre of MCRs.

AIM

To provide healthcare professionals with relevant guidelines for the accurate utilization and comprehension of the origins of eponymic bacterial names when engaging in the genre of MCRs.

MATERIALS AND METHODS

We examined the prevalence of eponymic names of bacteria in the issues of *Journal of Medical Case Reports* (*JMCRs*) [28], which have been published over the past 18 years, spanning from 2007 to 2025. The selection and scope of this material are driven by the journal's establishment in 2007 and its status as a prominent open-access peer-reviewed platform, ensuring effective tracking and analysis of major trends within the MCRs genre, and facilitating rapid information exchange among researchers worldwide. We selected eponymic bacterial nomenclature, using *The Latin-Ukrainian Medical Encyclopedic Dictionary* [1], *The Latin-Ukrainian Thesaurus of Clinical Terms* [29], *Bergey's Manual of Systematics of Archaea and Bacteria* [30] and the *List of Prokaryotic names with Standing in Nomenclature* database [31]. Next, we conducted an automated search on the journal's website (the "Articles" section, using the "Search articles within this journal" feature) to examine the occurrence and frequency of eponymic bacterial names in *JMCRs*. To identify the key patterns of using bacterial nomenclature in this genre, the chosen terminological units underwent assessment through quantitative analysis, structural evaluation, etymological analysis, and contextual examination. Quantitative examination allows for the collection of data to explore the numerical trends and prevalence of eponymic names of bacteria. Structural methodology, on the other hand, seeks to elucidate and dissect the constituent components and attributes of a term across various levels, encompassing aspects like morphology (features related to word construction) and syntax (the principles governing phrase formation). Structural analysis serves as a potent tool for comprehending the inherent language patterns and regularities. Etymological analysis, in turn, unveils the origins of words and their evolution through centuries. Lastly, contextual analysis involves the in-depth exploration and understanding of a term in its broader contexts, including the historical, social, and cultural ones.

ETHICS

All sources used in this literature review are publicly available.

AI STATEMENT

The author states that no AI tools were used in writing this article.

REVIEW AND DISCUSSION

In the first stage of our research, we analyzed eponymic bacterial names quantitatively, and identified the most common bacterial eponyms in *JMCRs*. A total of 48

Table 1. The prevalence of eponymic bacterial genera in *JMCRs* as of 2025

No.	Eponymic names of bacterial genera	Number of results in JMCRs as of 2025	Examples from JMCRs
1	*Escherichia*	198	"It has been shown that the majority of cases of EPN are caused by Escherichia coli, a finding that is consistent with the present case" (2025).
2	*Klebsiella*	124	"Systemic infections caused by Klebsiella pneumoniae carbapenemase-producing Klebsiella pneumoniae strains have increased in many European regions" (2019).
3	*Salmonella*	69	"This case highlights the novelty of a Salmonella enteritidis-induced septic sacroiliitis in a previously healthy adolescent of Ladino ethnicity, emphasizing the importance of considering atypical pathogens" (2025).
4	*Brucella*	65	"A variety of Brucella species, such as Brucella abortus, Brucella melitensis, and Brucella suis, have the potential to cause infectious complications affecting the kidneys" (2025).
5	*Borrelia*	50	"Although Borrelia burgdorferi-induced Lyme disease may occasionally affect balance and hearing indirectly, Lyme-related vestibular symptoms are usually part of a larger systemic picture" (2025).
6	*Neisseria*	45	"A 29-year-old Caucasian male presented with a monkeypox virus proctitis that recurred after treatment for a documented Neisseria gonorrhoeae and Chlamydia trachomatis coinfection" (2023).
7	*Bartonella*	34	"Bartonella henselae deoxyribonucleic acid was detectable in the blood samples and cardiac valve with vegetation paraffin-fixed tissue samples" (2023).
8	*Rickettsia*	34	"The result of immunofluorescence antibody testing for rickettsial immunoglobulin G was strongly positive for Rickettsia conorii with a rise in titer convalescent sera" (2018).
9	*Coxiella*	32	"We suggest that Coxiella burnetii might trigger autoimmune liver disease" (2009).
10	*Yersinia*	27	"Yersinia enterocolitica is one of the species in this genus that can cause human diseases. The other two are Yersinia pseudotuberculosis and Yersinia pestis" (2016).
11	*Nocardia*	25	"Multidrug-resistant Nocardia wallacei was cultured from a stereotactic brain biopsy and confirmed by 16S ribosomal ribonucleic acid gene sequencing" (2013).
12	*Leishmania*	25	"To the best of our knowledge, this is the first case of cutaneous leishmaniasis by Leishmania donovani in a child" (2014).
13	*Shigella*	23	"Similarly, Shogbesan et al. described a case of Shigella sonnei bacteremia in an otherwise healthy patient with a prior history of Roux-en-Y gastric bypass" (2021).
14	*Listeria*	21	"…meningitis could be caused by atypical organisms such as Listeria monocytogenes, Cryptococcus neoformans, Acanthamoeba species, or herpes simplex virus" (2021).
15	*Burkholderia*	18	"Melioidosis is a serious disease caused by the bacterium Burkholderia pseudomallei which affects humans and animals" (2023).
16	*Serratia*	18	"Serratia marcescens, a rod-shaped facultative anaerobe bacterium is a Gram-negative pathogen that can be found in respiratory and urinary tracts" (2023).
17	*Prevotella*	17	"Porphyromonas gingivalis, Tannerella forsythensis, and Prevotella intermedia are often detected in periapical biofilms" (2018).
18	*Morganella*	12	"…the regrowth of meropenem-sensitive Morganella morganii in CSF cultures" (2021).
19	*Francisella*	10	"Francisella tularensis, a facultative intracellular Gram-negative bacterium, has rarely been reported as an agent of pericarditis, generally described as a complication of tularemia sepsis" (2008).
20	*Bordetella*	10	"Bordetella bronchiseptica can be a cause of virulent pneumonia in humans with impaired immune systems" (2009).
21	*Eikenella*	8	"(…) Eikenella corrodens, and Kingella kingae group that may cause about 3% of the total endocarditis cases" (2009).
22	*Moraxella*	7	"His ICU course was further complicated by Moraxella catarrhalis pneumonia, for which he completed a course of imipenem" (2012).

Table 1. Cont.

23	*Kingella*	6	"Kingella kingae, though part of the normal upper respiratory tract and genitourinary tract, is increasingly being recognized as an important human pathogen" (2009).
24	*Babesia*	5	"…Babesia microti, and Borrelia burgdorferi) in addition to a Lyme antibody immunoblot test" (2023).
25	*Ehrlichia*	5	"Ehrlichia chaffeensis was first described as a human pathogen in 1986 and E. ewingii in 1996" (2008)
26	*Edwardsiella*	3	"Extraintestinal infections caused by Edwardsiella tarda in humans are rare and occur in the presence of some risk factors" (2016).
27	*Elizabethkingia*	3	"Microbiological sampling from his anterior chamber and posterior segment revealed a culture of Elizabethkingia meningoseptica" (2011).
28	*Pasteurella*	3	"We present a case of septic shock in an elderly woman due to Pasteurella multocida" (2015).
29	*Veillonella*	3	"Blood cultures revealed Veillonella parvula bacteremia, with subsequently repeated magnetic resonance imaging" (2022).
30	*Collinsella*	2	"…the relative abundances of genera Alistipes, Bifidobacterium, and Lactobacillus and the species Collinsella aerofaciens are inversely associated with IBS" (2019).
31	*Kluyvera*	2	"To the best of our knowledge, this is the first case report of a multidrug resistant Kluyvera ascorbata isolated from the blood in an adult patient with sepsis" (2010).
32	*Kocuria*	2	"Cultures of his CSF and sputum revealed the presence of Kocuria varians/rosea and Staphylococcus aureus, respectively" (2014).
33	*Ralstonia*	2	"Ralstonia mannitolilytica is an emerging opportunistic pathogen that is associated with severe disease, including septic shock" (2019).
34	*Raoultella*	2	"Raoultella Planticola is a facultative anaerobic, gram-negative, water- and soil-dwelling rod bacterium rarely reported as a cause of human disease" (2021).
35	*Tannerella*	2	"The pretreatment bacteriological examination showed that the counts of Porphyromonas gingivalis, Tannerella forsythia" (2023).
36	*Bergeyella*	1	"Bergeyella zoohelcumi" (mentioned in a table) (2017).
37	*Blautia*	1	"After FMT, Bacteroides (61.9%) increased, whereas proportions of Blautia (0.25%), ClostridiumXlVa (1.0%), Lachnospiraceae (1.6%), Fusobacterium (9.2%) were decreased" (2021).
38	*Bosea*	1	"Microimmunofluorescence serologies performed on two samples of serum drawn on day 1 and on day 8 remained negative for Bosea vestrii" (2009).
39	*Cedecea*	1	"Cedecea lapagei bacterium was discovered in 1977 but was not known to be pathogenic to humans until 2006" (2018).
40	*Erwinia*	1	"Whereas Erwinia and Tatumella organisms have not been associated with central nervous system infection, Kluyvera meningitis has been reported in a newborn" (2014).
41	*Ewingella*	1	"Here we report a case that was caused by Ewingella americana and thus required different considerations of treatment" (2014).
42	*Robinsoniella*	1	"Robinsoniella peoriensis was recently identified as a Gram-positive, spore-forming, anaerobic bacillus" (2012).
43	*Rothia*	1	"Rothia mucilaginosa is a Gram-positive bacterium occurring as a commensal in the oral cavity and upper respiratory tract" (2019).
44	*Shewanella*	1	"Shewanella putrefaciens group" (mentioned in a table) (2017).
45	*Tatumella*	1	"Indeed, P. calida is closely related to members of the Enterobacteriaceae genus Erwinia, Tatumella, Kluyvera" (2014).
46	*Tsukamurella*	1	"Serial sputum cultures grew Tsukamurella pulmonis, a rare pathogen associated with cavitary pneumonia in immunocompromised patients" (2008).
47	*Weeksella*	1	"Using API 20NE (bioMérieux, Marcy l'Etoile, France), two isolates initially identified as Weeksella virosa" (2008).
48	*Yokenella*	1	The aspirated pus grew Yokenella regensburgei, for which the patient was treated with appropriate antibiotics (2016).

Source: compiled by the authors of this study

eponymic bacterial genera were identified, showcasing their substantial presence across *JMCRs* articles, with a cumulative count of 925 instances of usage. Table 1 demonstrates the diversity of bacteria encountered in clinical practice and provides some examples from the published issues.

These findings indicate the varying prevalence of different eponymic bacterial genera in JMCRs. As shown in Table 1, *Escherichia* is the most prevalent eponymic bacterial genus, with 198 mentions in the articles. *Klebsiella* ranks second, appearing 124 times. Salmonella, Brucella, and Borrelia follow, with 69, 65, and 50 mentions, respectively. Among the analyzed eponyms, genera mentioned up to 50 times include *Neisseria* (45), *Bartonella* (34), *Rickettsia* (34), *Coxiella* (32), *Yersinia* (27), *Nocardia* (25), and *Leishmania* (25). Those cited up to 25 times include *Shigella* (23), *Listeria* (21), *Burkholderia* (18), *Serratia* (18), *Prevotella* (17), and *Morganella* (12). Less commonly represented genera include *Francisella* (10) and *Bordetella* (10), followed by *Eikenella* (8), *Moraxella* (7), *Kingella* (6), *Babesia* (5), and *Ehrlichia* (5). Several genera are mentioned only a few times, such as *Edwardsiella* (3), *Elizabethkingia* (3), *Pasteurella* (3), *Veillonella* (3), *Collinsella* (2), *Kluyvera* (2), *Kocuria* (2), *Ralstonia* (2), *Raoultella* (2), and *Tannerella* (2). Finally, a number of bacterial genera appear only once in the analyzed corpus, including *Bergeyella*, *Blautia, Bosea, Cedecea, Erwinia, Ewingella, Robinsoniella, Rothia, Shewanella, Tatumella, Tsukamurella, Weeksella*, and *Yokenella*.

In addition to bacterial genera, there are also several eponymic diseases in *JMCRs* with varying frequencies among different conditions. Hence, brucellosis stands out with 51 mentions; leishmaniasis follows with 40 cases; salmonellosis is mentioned in 10 papers; rickettsiosis is less frequently described, with 5 cases, babesiosis and listeriosis are mentioned 3 times, yersiniosis – twice, while shigellosis appears once in *JMCRs*.

In the field of microbiology and taxonomy, the naming of bacterial species and genera follows a standardized system known as binomial nomenclature, which was established by Carl Linnaeus in the 18th century. This system uses Greek and Latin to create scientific names for organisms. These names typically consist of two parts: the genus name (capitalized and italicized) and the species epithet (italicized).

Genus name is the first part of the term, a noun in the nominative singular form. It is always written with an initial capital letter. It is the broader category that groups related species together based on shared characteristics. For example, in the case of *"Escherichia coli," "Escherichia"* is the genus name. These names are often chosen to honor a scientist, describe a characteristic, or have historical significance.

Species name is the second part of the term, an adjective in the nominative singular form that agrees in gender with the genus name. It is always written in lowercase and is typically an adjective that describes a characteristic of the organism or its habitat. For instance, in *"Escherichia coli," "coli"* refers to the organism's habitat, the colon, and in *"Klebsiella pneumoniae", "pneumoniae"* indicates its association with lung infections. It is necessary to point out that species names can also honor individuals, describe physical features, or have other meaningful associations, e.g. *Borrelia burgdorferi* honors Dr. Willy Burgdorfer, who discovered it.

Subspecies and strain names: in some cases, there may be further subdivisions within a species, such as subspecies or strains. These names follow the genus and species names and can also be descriptive or honor individuals. For instance, *"Escherichia coli O157:H7"* denotes a specific strain with particular characteristics.

The use of Greek and Latin in scientific names allows for a universal and standardized way of referring to organisms. It ensures clarity and consistency in taxonomy and helps scientists communicate effectively across languages and regions [16]. Additionally, the use of descriptive terms in species names often provides insights into the characteristics, habitat, or historical context of the organism, which can be valuable information for researchers and clinicians. Hence, the Greek and Latin naming conventions for bacterial species and genera follow a systematic structure, with genus names serving as the broader category and species names providing specific descriptors or associations.

Therefore, remembering and adhering to Latin grammar rules when spelling and forming scientific names in microbiology and taxonomy is of utmost importance for several reasons. First, it ensures clarity and precision, which are essential for effective communication among scientists, researchers, and clinicians worldwide. Next, it provides grounds for universal understanding: Latin is a universal language in science, and using it in scientific names allows researchers from different linguistic backgrounds to understand and communicate effectively. It transcends language barriers, ensuring that the same name is used and understood globally. This universal understanding is crucial for collaboration and the exchange of scientific knowledge. Furthermore, the rules of Latin grammar help maintain consistency in taxonomy, which is vital for organizing and categorizing the vast diversity of life on Earth. Correctly formed names facilitate the grouping of related organisms into genera and species, ensuring that these classifications accurately reflect evolutionary relationships and shared characteristics. Another essential aspect is respect for tradition, as Latin has a long tradition of use in scientific

nomenclature, dating back to the time of Carl Linnaeus. Respecting this tradition by adhering to Latin grammar rules pays homage to the history and foundations of taxonomy and microbiology. It can also help in preventing ambiguity and misinterpretation. Deviations from Latin grammar rules can lead to confusion and hinder the accurate identification of organisms, potentially affecting research outcomes or clinical diagnoses.

In particular, highlighting specific Latin grammar rules, such as the use of the genitive singular forms for nouns and the importance of gender agreement in adjectives, is crucial when forming scientific names for bacterial genera and species. For instance, in Latin grammar, the genitive singular form "ae" is used for feminine nouns, which is often observed in the species part of the binomial name. In addition, Latin adjectives must agree in gender, number, and case with the nouns they modify. This means that when forming a scientific name, the adjectives used to describe the characteristics of the species or genus must match the gender of the genus name. For example, if the genus name is feminine, adjectives used to describe a species within that genus should also be in the feminine form.

By remembering these Latin grammar rules, scientists and researchers in the field of microbiology and taxonomy can ensure the accurate formation of scientific names. This adherence to proper grammar not only maintains clarity and precision but also upholds the tradition and integrity of scientific nomenclature. It is essential for effective communication, both within the scientific community and among those who rely on accurate scientific names for research, diagnosis, and classification.

In this educational context, we believe that providing basic biographical information in the classroom holds substantial educational value. This historical context not only provides insight into the contributions of these scientists but also helps researchers and students connect with the history of microbiology. It highlights how the work of these individuals laid the foundation for our current understanding of bacteria and infectious diseases. This approach embeds the achievements of scientists in a meaningful historical context, enabling medical students to better comprehend the historical backdrop. They can compare similar innovations or discoveries in their own country and internationally, thus gaining a deeper understanding of the evolution of medical science over time. All these elements collectively contribute to the improved memorizing and accurate usage of eponyms in students' future professional endeavors.

Table 2 demonstrates our approach to presenting the etymological aspects of eponymic bacterial nomenclature to medical students in the classroom.

Table 2 provides several insights into the nature of some eponymic bacterial nomenclature. Our study demonstrated that eponyms are effective means of knowledge continuity: the tradition of naming bacterial genera and species after notable bacteriologists and scientists who have made significant contributions to microbiology ensures that the legacy and work of these individuals continue to be recognized and remembered in the field. As one can observe, the majority of eponymic bacterial genera stem from the last names of scientists, with several exceptions, e.g., *Erwinia,* which derives from the researcher's first name. The detected terms are formed by adding the suffixes "-ia", "-ella", "-iella", and "-a" to the stem. An interesting case is also the eponym *Elizabethkingia,* which contains both the first name and last name of the researcher. Moreover, the name of Elizabeth Osborne King is reflected in two eponyms in the frame of our research material: *Kingella* and *Elizabethkingia*. It is also necessary to point out that some eponyms, such as *Borrelia burgdorferi* and *Rickettsia slovaca*, are named after geographic locations where the organisms were first isolated. This practice provides information about the geographical distribution of bacterial species.

Another interesting finding is the revealed scientific contribution in bacteriology by country, which can also be used in the classroom to increase students' intercultural competence and readiness to work in the international professional setting. Table 2 reflects contributions from scientists of various nationalities, emphasizing that medical research is a global effort, and eponyms bridge cultural and geographic boundaries. The studied bacterial genera were named after doctors from various countries, including the United States, the United Kingdom, France, Germany, Italy, Argentina and Peru, Switzerland, Japan, Slovakia, Romania, and others. The majority of the scientists mentioned are affiliated with the United States, with numerous bacterial species named after American microbiologists or associated with U.S. research institutions. This analysis highlights how eponyms play a valuable role in the continuity of knowledge and recognition of scientific contributions in bacteriology. It also underscores the global nature of scientific research, with scientists from various countries contributing to our understanding of bacterial diversity and classification.

Hence, eponyms in bacterial nomenclature serve an educational purpose by allowing students and researchers to learn about the scientists and their contributions to the field. This historical and contextual information enhances the understanding of bacteriology as a science. Through eponyms, the legacies of

Table 2. Etymological features of some eponymic bacterial nomenclature in JMCRs

No.	Eponymic names of bacterial genera	Reference information
1	*Babesia*	Named after Victor Babeș (1854-1926), a Romanian physician and bacteriologist. He co-authored one of the earliest bacteriology treatises in 1885.
2	*Bartonella*	Alberto Barton (1870-1950) was a microbiologist originally from Argentina but later affiliated with Peru. Cf. Bartonella henselae, of Hensel, named to pay tribute to Diane M. Hensel, who was responsible for isolating a significant number of the original strains found in bacteremic patients.
3	*Bergeyella*	Named after the American bacteriologist David H. Bergey (1860-1937), known for their contributions to taxonomy.
4	*Blautia*	Named in recognition of Michael Blaut, a German microbiologist renowned for his work in gastrointestinal microbiology.
5	*Bordetella*	Jules Bordet (1870–1961), along with Octave Gengou (1875-1957), isolated the organism responsible for pertussis.
6	*Borrelia*	Named after Amedée Borrel (1867-1936), a French bacteriologist. Cf. Borrelia burgdorferi is named after Willy Burgdorfer.
7	*Bosea*	Honoring Sir Jagadish Chandra Bose (1858-1937), founder of the Bose Institute where the type species Bosea thiooxidans was isolated.
8	*Brucella*	Named after Sir David Bruce (1855–1931), who first identified the organism causing undulant (Malta) fever. Cf. Brucella melitensis, associated with the Island of Malta (Melita), where it was initially isolated.
9	*Burkholderia*	Named after Walter Hagemeyer Burkholder (1891-1983), the American bacteriologist.
10	*Cedecea*	Named after the abbreviation CDC by Patrick A. D. Grimont and Francine Grimont at the Centers for Disease Control, Atlanta, Georgia.
11	*Collinsella*	Honoring Matthew D. Collins, an English microbiologist known for his contributions to microbial taxonomy and phylogeny.
12	*Coxiella*	Named after Harold R. Cox (1907-1986), who first isolated this organism in the United States. Cf. Coxiella burnetii is named after Frank MacFarlane Burnet, the first researcher to investigate the characteristics of this organism.
13	*Edwardsiella*	Named after American bacteriologist Philip Rarick Edwards (1901-1966).
14	*Ehrlichia*	Named after Paul Ehrlich (1854-1915), a German physician and scientist who made significant contributions to immunology and chemotherapy. Cf. Ehrlichia chaffeensis, associated with Fort Chaffee in western Arkansas, where the patient from whom the initial isolate was prepared was identified. Ehrlichia ewingii is named in recognition of Sidney A. Ewing for his groundbreaking work with this agent.
15	*Eikenella*	Named after M. Eiken, a Scandinavian biologist who first classified the type species.

Source: compiled by the authors of this study

pioneering scientists are preserved, ensuring that their names and achievements are remembered and celebrated within the scientific community. The analysis of the data from the table reflects the diversity of bacterial genera, the global nature of scientific research, and the historical and contemporary significance of scientists' work. Eponyms play a multifaceted role in recognizing and honoring these contributions while facilitating communication and knowledge continuity in the field of microbiology.

Our findings demonstrated the prevalence and significance of eponymic bacterial nomenclature within the corpus of *JMCRs*. The etymological origins of these names were revealed, shedding light on the historical figures whose contributions led to their immortalization in the world of microbiology. Utilizing the information found in Table 2 within the classroom setting can significantly enhance the processes of understanding and memorizing eponymic bacterial nomenclature. This, in turn, has the potential to boost students' motivation to learn, as it places terms within a meaningful context [12] and contributes to the development of their terminological competence – a fundamental skill in medical education [11].

Furthermore, this study revealed common errors in the spelling of certain bacterial names, emphasizing the need for precision and accuracy in medical terminology. Spelling errors in bacterial names can occur due to various reasons, including typographical mistakes or lack of familiarity with Latin grammar rules. Some common errors in spelling bacterial names include typos and misspellings; incorrect capitalization; incorrect gen-

der agreement; transposition of letters. To avoid these common errors, it is essential to refer to authoritative sources, double-check spellings, and ensure adherence to Latin grammar rules when using or reporting bacterial names in scientific writing.

For instance, in *JMCRs,* we detected a misspelling of bacterial genus *Ehrlichia:* "Infectious and autoimmune etiologies were investigated with complete blood count, C-reactive protein (CRP), erythrocyte sedimentation rate, antinuclear antibodies (ANA), blood culture, and serum analysis for antibodies directed against *Treponema pallidum*, hepatitis C, and tick borne diseases (*Erlichia chaffeensis, Anaplasma, Babesia microti,* and *Borrelia burgdorferi*) in addition to a Lyme antibody immunoblot test" (2023) [28]. In addition, we found a non-italicized spelling of bacterial genera in an article from *JMCRs:* "Further serum antibody tests were ordered for Listeria monocytogenes, Borrelia burgdorferi, Mycoplasma pneumoniae (MP) and Ureaplasma ureolyticum" (2021) [28].

Our study did not find a significant number of errors in the use of eponymic bacterial names in *JMCRs*. However, we found numerous cases across other journals, e.g., in the PubMed database, for instance, *Neiseria gonorrhoeae* (missing "s") [33]; *Erlichia chaffeensis* (missing "h") [34]; *Weaksella virosa* ("a" instead of "e") [35]; *Fransicella tularensis* (transposition of letters "c" and "s") [36]; *Burkholdria* (missing "e") [37] and others. Therefore, it is obvious that this terminological phenomenon remains a crucial aspect that demands meticulous attention in medical education in order to minimize and prevent potential errors in medical discourse.

To address these challenges, we developed several guidelines and recommendations aimed at facilitating the correct utilization of eponymic bacterial nomenclature by medical professionals. In such a manner, we advocate the importance of a comprehensive understanding of a term's etymology as a powerful tool for preventing and reducing errors in medical case reports.

1. Italicizing bacterial genera: Thines et al. (2020) argue that italicizing taxonomic ranks, including genus and species names, aids in their rapid recognition and differentiation from informal names [32].

2. Initial use: The first time a bacterium is mentioned in a research article, it is written in full. This provides readers with the full taxonomic information.

3. Uppercase, lowercase and punctuation: All subsequent mentions in the text should be abbreviated according to the following capitalization pattern: "*E. coli*".

Gaining insight into the origins of eponyms is equally crucial. Familiarity with the background and historical context of eponymous terms can assist medical students and researchers in using them accurately. We endorse the integration of eponyms exploration as a fundamental aspect of medical education and ongoing professional development for doctors, with the aim of reducing and mitigating errors in medical discourse. Achieving this goal may involve the development of informative dictionaries and other reference materials dedicated to medical eponyms, offering comprehensive background information about the individuals whose names have been immortalized in these terms.

By following these guidelines, we ensure consistency and precision in our scientific writing, facilitating effective communication in the realm of microbiology and beyond. Accurate representation of bacterial genera is essential in maintaining the integrity of scientific literature and promoting clarity in research publications.

Thus, the appropriate application of bacterial nomenclature in medical case reports plays a pivotal role in effectively communicating clinical findings to a global audience of healthcare professionals. It not only reflects the competence and education of medical practitioners but also contributes to the dissemination of scientific knowledge. As such, it is imperative to introduce students to the prevalence of eponymic bacterial nomenclature in contemporary medical case reports, equipping them with the knowledge and skills needed for their accurate usage while appreciating the historical context. Incorporating the study of these terms into medical education and ongoing professional development is essential to foster interdisciplinary growth in modern medical practice.

CONCLUSIONS

In the constantly evolving landscape of medical literature and scientific communication, the accurate use of bacterial nomenclature in medical case reports stands as a keystone for effective knowledge dissemination. MCRs reports serve as vital media through which clinicians and researchers share their insights, experiences, and findings with peers and colleagues worldwide. It is not merely a matter of lexical correctness but a demonstration of one's competence and excellence within the medical field. This emphasizes the significance of instilling an understanding of this terminological phenomenon. The awareness and comprehension of eponymic bacterial nomenclature, encompassing its historical underpinnings and intricacies, are essential tools for students in their medical education. Equipped with this knowledge, they are better prepared to navigate the multifaceted world of medical terminology and use these terms accurately and confidently. Such familiarity empowers them not only to employ these terms correctly but also to appreciate the context and significance of their origins.

Thus, the study of this unique category of terms should form an integral and indispensable component of medical education and ongoing professional development for healthcare practitioners.

Embracing this holistic approach to medical education and terminology enhances the learning experience, fostering an interdisciplinary and synergistic outlook among future healthcare specialists. These individuals, armed not only with clinical expertise but also a profound understanding of the linguistic and historical facets of their field, will be able to make substantial contributions to the ever-advancing realm of medical science. Through this comprehensive growth, they can bridge the gap between the medical past and future, ensuring the continued progress and excellence of the healthcare profession on a global scale.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

CORRESPONDING AUTHOR

Yuliia Lysanets
Poltava State Medical University
23 Shevchenko St., 36011 Poltava, Ukraine
e-mail: julian.rivage@gmail.com

ORCID AND CONTRIBUTIONSHIP

Yuliia Lysanets: 0000-0003-0421-6362 A B D F
Olena Bieliaieva: 0000-0001-9060-4753 D E F
Olena Uvarkina: 0000-0002-7804-3727 B E
Mariia Hutsol: 0009-0003-7033-3070 B

A – Work concept and design, B – Data collection and analysis, C – Responsibility for statistical analysis, D – Writing the article, E – Critical review, F – Final approval of the article

RECEIVED: 18.11.2025
ACCEPTED: 20.05.2026

CREATIVE COMMONS 4.0