

Benefits and Drawbacks of International Medical Elective Databases in Abroad Elective Research: A Narrative Review

Maximilian Andreas Storz ¹, Rintaro Imafuku ²

¹Department of Internal Medicine II, Centre for Complementary Medicine, Medical Center – University of Freiburg, Faculty of Medicine, University of Freiburg, Freiburg, Germany; ²Medical Education Development Center, Gifu University, Gifu City, Japan

Correspondence: Maximilian Andreas Storz, Department of Internal Medicine II, Faculty of Medicine, Centre for Complementary Medicine, Medical Center, University of Freiburg, Freiburg, Germany, Tel +4915754543852, Email maximilian.storz@uniklinik-freiburg.de

Background: International medical electives (IMEs) are considered high-impact practice in global health education. Nevertheless, international medical elective (IME) research remains scarce, with only a few new publications appearing each year. The discrepancy between the many unanswered questions regarding IMEs and the lack of opportunities to perform research in this field has been further aggravated by the COVID-19 pandemic. Elective databases cataloguing structured IME reports/testimonies could offer a viable solution here. This narrative review provides a balanced and objective evaluation of the strengths and weaknesses of elective databases, summarizing their potential usefulness in IME research.

Methods: The methodology employed was a multidisciplinary narrative review of the published and grey literature on databases cataloguing IME testimonies.

Results: Elective databases offer numerous benefits to the IME researcher. Their size allows for large analyses, built on hundreds of equally structured elective testimonies. Pre-defined outcomes, such as the elective destination, elective discipline or duration, are queried in a standardized way, allowing for a broad set of research questions. Elective databases are usually open-access, not confined to a single university, and free to use. Most databases also offer user-friendly filter functions, permitting targeted analyses centered around a particular outcome. A major drawback is that reports are rarely verified. Subject to several forms of bias (eg, recall and reporting bias), elective databases may not be suitable for all types of research questions, and the report quality is often inhomogeneous. Above all, they rarely allow for an informational depth that may result from qualitative face-to-face interviews.

Conclusion: Elective databases could be a valuable supplement to interview-based elective research, potentially allowing for larger and broader analyses not confined to single institutions.

Keywords: international medical elective, abroad elective, medical education, global health, learning, research

Introduction

An international medical elective (IME) is an abroad placement program that provides clinical immersion experiences for medical students.^{1,2} IMEs are considered a unique opportunity for medical students to gain clinical experience outside of their home university setting.³ In most cases, IMEs are unstructured, and arranged on an ad-hoc basis between an elective student and a host institution.^{4,5}

Abroad electives serve multiple purposes and have been associated with various benefits, including (but not limited to) improved language skills, improved awareness of clinical ethics, increased cultural and linguistic competences, higher odds for pursuing careers with underserved populations, and improved awareness for working in resource-limited settings.^{1,6–13}

Despite these potential benefits, research on abroad electives generally remains scarce. Numerous explanations for this are conceivable, including a lack of funding, difficulties in study participant recruitment (potential study subjects often start as residents upon completing their final-year elective and thus lack the time to partake in studies), and the fact

that only a handful of research groups tend to dedicate their human and financial resources to this underexplored area of medical education.

Notably, there are many open questions remaining in the field of IME research.^{1,14,15} Jolly emphasized that electives are “the least well researched of any aspect of clinical education”.¹⁴ This applies particularly to the benefits of structured medical electives and to a more unbiased literature which aims at capturing the full spectrum of internationalization activities existing in both the Global South and North.^{15,16}

At present, there is a discrepancy between the number of unanswered research questions in this particular research field and the opportunity to perform elective-centered research.^{1,17} In the last four years, abroad electives have been largely placed on hold in many countries due to the COVID-19 pandemic.^{1,18} This has undoubtedly affected research activities, as well.¹ Since the number of medical students who went abroad for an elective within the last years declined, the number of potential study participants for elective research was and is still greatly diminished. As a result, recruiting a sufficient amount of participants to perform meaningful and representative IME surveys is currently a difficult task.

Elective databases, which systematically catalogue abroad medical elective reports and testimonies written by medical students in an online repository, could potentially offer a viable and effective solution here. For example, widely used in the German-speaking countries, elective databases offer abroad elective-specific content, such as data regarding the elective destination, the elective discipline, the elective duration and other elective-relevant information.¹⁹ Figure 1 shows the annotated structure of an exemplary elective testimony/report from one of the two largest German elective databases,^{20,21} the so-called “PJ-Ranking” database.²¹

The herein included information could be of great value for researchers engaging in elective-associated research, particularly when a large number of elective testimonies are analyzed in parallel with regard to a specific research question. Our research group has used such databases for several years to perform metric-related IME research. Nonetheless, to the best of our knowledge, elective databases are still rarely used in elective research. A wider use of elective databases could potentially boost IME research, helping to address unanswered questions in the field and ensuring continuous research despite the post-COVID-19 pandemic repercussions the field is still suffering from.

The screenshot displays the 'PJ-Ranking' database interface. At the top, a breadcrumb trail shows the path: 'PJ Berichte' > 'Seoul' > 'Seoul National University Hospital' > 'PJ Bericht vom 29.01.2019'. The main content is divided into several sections:

- Left Panel (Ratings):** A table with 'Noten' (Notes) and 'Elective Rating' columns.

Noten	Elective Rating
Team/Station	1
Kontakt zur Pflege	1
Ansehen des PJlers	1
Klinik insgesamt	2
Unterricht	2
Betreuung	1
Freizeit	3
Station / Einrichtu...	1
Gesamtnote	1

 Below the table, the 'Durchschnitt 1.4' (Average 1.4) is shown, labeled as 'Overall rating'.
- Right Panel (Elective Details):** A section titled 'PJ-Tertial Innere in Seoul National University Hospital (11/2018 bis 1/2019)'. It contains fields for:
 - Station(en): Katheterlabor, Echo, ER, Stat
 - Einsatzbereiche: Poliklinik, Sprechstunden, Diagnostik, Station
 - Heimatuni: TU Muenche...
 Callouts identify 'Assigned ward' and 'Elective discipline' in the station and department fields, and 'Home university' in the 'Heimatuni' field.
- Bottom Panel (Free Text):** A section titled 'Free text' with a 'Kommentar' (Comment) input area.
- Navigation:** At the bottom left, there are dropdown menus for 'Alle Fachrichtungen' (All Specialties) and 'Südkorea' (South Korea).

Figure 1 Structure of the medical elective database “PJ-Ranking”: an overview.

Notes: The elective destination (country and city) as well as the elective institution are marked in the red box in the left upper corner.²¹ Data regarding the elective destination, duration, discipline, the assigned ward and the home university are mandatory for a report. The free-text option offers the uploader to describe his/her elective experience in a non-standardized way.

The purpose of this narrative review was to provide a balanced and objective evaluation of the strengths and weaknesses of international elective databases and their potential usage for researchers engaging in IME research. Drivers for and barriers to their usage in medical elective research were analyzed in detail.

Analytical Approach

The methodology employed is a multidisciplinary narrative review of the published and grey literature on IME databases systematically cataloguing elective testimonies. Drawbacks and advantages of elective databases with regard to open research questions in the field of international medical electives are discussed based on our tertiary experience using elective databases within the last years.

Strengths of Medical Elective Databases

Case Numbers

Elective databases offer various benefits which might be of high value for researchers in the field of IMEs. Due to their large volume of catalogued elective testimonies, they usually allow for high case numbers in the context of larger (global) analyses which are not restricted to a certain geographical region. Combining databases, where possible, might contribute further to an increase in the sample size. In an analysis of popular elective destinations of German-speaking medical students conducted by our research group, a total of $n = 856$ overseas elective reports could be analyzed between 2016 and 2020.¹⁹ For this analysis, elective reports were obtained from the two largest elective databases available in Germany.^{20,21} Notably, electives in Switzerland and Austria were not considered for this specific analysis, which would have further enlarged the sample size.¹⁹ In another study which was built on the same databases,^{20,21} Beckschulte et al investigated trends in international medical elective fees over the past 15 years.²² This analysis was confined to six particularly popular elective destinations among German-speaking medical students, including the United States of America, Australia, New Zealand, Ireland, the United Kingdom and South Africa. Despite the relatively strict inclusion criteria for this analysis, $n = 438$ elective testimonies could be included.²² For an illustrative purpose and to highlight what kind of research is possible with elective databases, the results are summarized in Figure 2.

It is clear that such high case numbers are hardly achievable in studies which employ a qualitative approach, and which rely on face-to-face/in-person interviews. The same applies to retrospective analyses of abroad electives by students from a particular institution (eg, a specific university or medical center). Even well-connected institutions that have signed memoranda of understanding with multiple other institutions hardly yield such a high number of students undertaking abroad electives. The fact that elective databases allow for reports from more than one institution is another

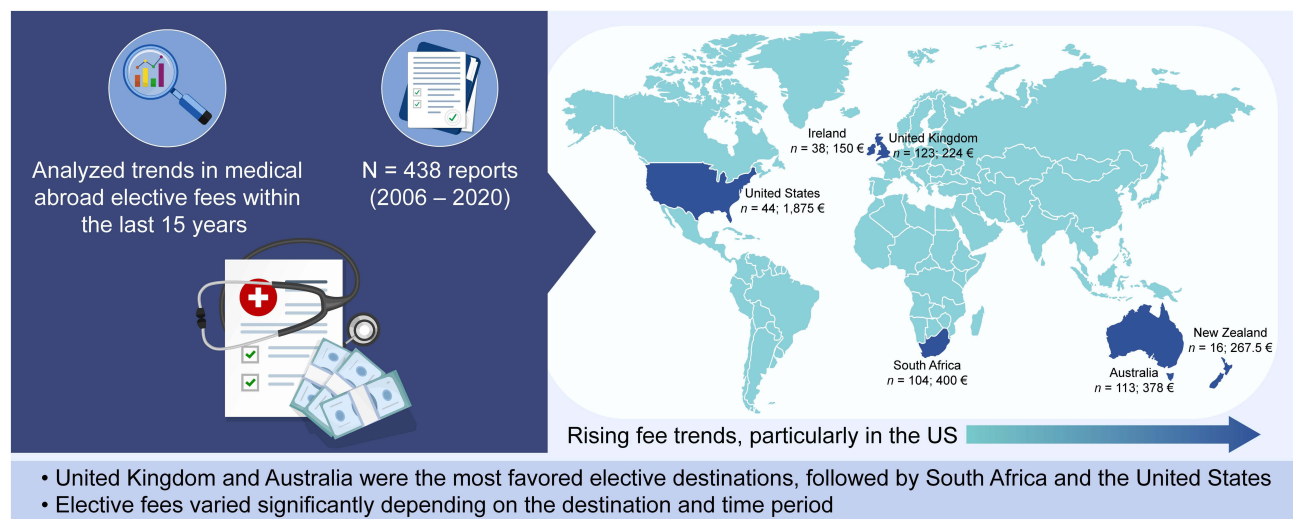


Figure 2 Illustrative summary of an elective database-built research project on elective fees.

Notes: The item "elective fee" is not mandatory to upload an elective report in the employed databases;^{20,21} nevertheless, $n = 438$ reports were compiled for this analysis.

large asset. The aforementioned two databases for example basically allow students from all German medical faculties (and beyond) to upload elective reports.^{20,21}

Filter Functions

Elective databases offer various filter functions that allow for country- or city-specific analyses. Analyses by a particular elective discipline (eg. general surgery, internal medicine, gynecology and obstetrics, emergency medicine, etc.) are also possible. As such, highly specific analyses focusing on a particular question are imaginable and feasible. An elective researcher could, for instance, explore the duration of all abroad electives undertaken in Australia in the discipline of general surgery. One example of our group that employed such an approach is a short contribution reviewing trends, students' experiences and barriers to clinical electives in China.²³ The filter function is particularly useful when it comes to so-called trend analyses, eg. analyses which focus on highly reported elective destinations over a certain time period and in a particular country, such as the United States of America.

Data Access and Reproducibility

As discussed earlier, elective databases are open to all students and not restricted to a certain university or country. Beyond that, reports are available on an open-access basis. The most commonly used elective databases do not charge their users to browse or read medical elective testimonies.^{20,21} A registration is not necessary in this particular case. It must be noted though that exceptions (with particular access restrictions or the need for a registration) exist.²⁴ As for the open-access databases, it is also important to acknowledge that individual reports have a unique URL (uniformed resource locator) that can be easily saved.^{20,21} This increases the reproducibility and makes it easy for the researcher to (re-)access a particular elective report when desired (for example, during peer-review after a journal submission).

Research Ethics

Furthermore, it is worth noting that most elective reports are written in an anonymous way. This could also be interpreted as an advantage, as no personal data is used. Obtaining ethical approval for a secondary data analysis from a local ethical committee might thus be easier in some instances. It is not inconceivable that the anonymous nature of many elective databases allows students to write their reports in a more genuine and unadulterated way, as negative consequences (in the form of a worse grade or other restrictions) are not an issue. The downside of not having to sign reports by name will be discussed later below.

Language Barriers

Most elective databases have no language restrictions. To the best of our knowledge, reports in various languages are permitted. This allows for selective analyses of reports in the English language. Notably, a filter function for this does not exist in the two most popular German databases.^{20,21} Based on our experience, the vast majority of reports is written in German language in these particular cases. As such, international researchers may encounter troubles when using these elective databases. In this case, it might be necessary to fall back on international but often smaller university-specific databases in English.^{24–26}

Standardized Reporting

Above all, the greatest asset of elective databases might be the standardized reporting structure (Figure 1). Since some basic information is always mandatory for every report to be successfully uploaded, elective databases are particularly useful when it comes to the analysis of these pre-defined criteria (eg. items such as the elective destination, discipline or duration). On the other hand, analyzing data which is not included on a mandatory basis might be more difficult and could diminish the overall case number on a case-by-case basis.

Weakness of Medical Elective Databases

While elective databases offer numerous advantages, there are also various potential drawbacks to consider. For a transparent and balanced discussion, all potential weaknesses are discussed in great detail, independent of the weight of each weakness.

Reporting Bias

Elective reports are usually written on a voluntary basis. This implies that medical students receive no financial remuneration for writing and uploading an elective testimony.²⁷ The uploaded elective reports are not validated or verified by the sending or host institution.^{19,27} Thus, hypothetically speaking, students may (intentionally) write reports in a distorted and biased way. This may affect not only the free-text part of the written report but also the standardized basic information which is mandatory to upload an elective testimony. Elective reports are inherently subject to various bias, including (but not limited to) reporting bias, recall bias and motivational bias.^{19,27} The latter is of particular importance, since reporting is not mandatory.²⁷ This implies the possibility that only students with an exceptionally well or particularly poor elective experience write an elective testimony. While this is not the case based on our tertiary experience, no study has systematically examined this potential limitation.

Data Integrity

Elective databases have further constraints. Analyses that rely heavily on the written free text of a report may be compromised by incomplete or very short elective descriptions. Occasionally, some students upload “empty” reports, which include only a few lines or nothing but the mandatory basic report information detailed above. This makes it particularly difficult when analyzing “soft” elective outcomes, such as motivations for undertaking abroad electives or benefits from abroad electives. Inherent to any database that includes free-text parts, the quality of the reports is often inhomogeneous. While some students describe their elective experience in great detail over several pages, others write only a handful of sentences. In addition to that, it must also be emphasized that rather uncommon or seldom selected elective destinations may be underrepresented in elective databases. In the China-centered analysis mentioned before, only $n = 40$ reports could be analyzed.²³

Author Traceability

Not all elective reports are written in an anonymous way. Some students include their contact data, name or e-mail address in the free text. This could be problematic in some instances when an ethical approval was only granted for an analysis of de-identified secondary data. As such, elective researchers are advised to consider this crucial aspect before applying for an ethical approval.

Report Extent and Depth of Data

Finally, it is clear that written elective reports do not have the same depth as face-to-face interviews. In-person interviews allow for numerous additional opportunities, in particular when it comes to research questions that target at *sensitive* content which a person would not like to “admit on the internet”. Examples include safety issues during an abroad elective (including physical or mental violence) or ethical problems arising during an elective.

Unidimensional Elective Perspective

Elective reports are in almost all cases written by a single author. They represent a subjective experience from a *single* perspective. Elective reports neither give a voice to the sending institution nor to the receiving institution (see [Figure 3](#), illustrating this unidimensional perspective of reporting). This is of particular importance in a time where the impact of medical electives on host institutions has gained additional attention.²⁸

Discussion

Advantages and drawbacks for the usage of medical elective databases in abroad medical elective research have been discussed in great detail. When weighing these drawbacks against potential assets, however, no definite answer may be given. To the contrary, whether elective databases are useful for elective researchers depends on the individual context and the specific research question. Elective databases, as summarized in [Table 1](#), are well suited for “hard” endpoints (eg, statistics regarding the elective destination, elective discipline, elective duration or fees). In this particular context, elective databases usually allow for high case numbers.

Moreover, they are partly suited for analyses concerning motivations for and barriers to abroad electives. This, however, requires a meticulous screening of all available reports in a particular database. The outcome will very much

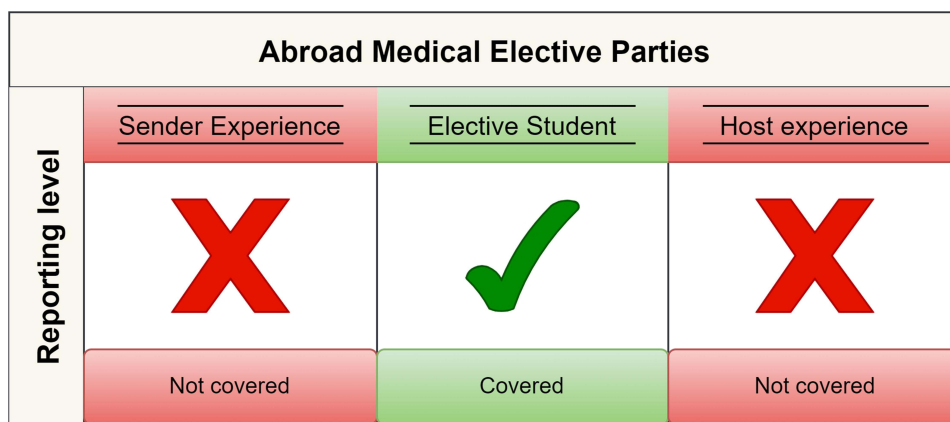


Figure 3 Reporting dimensions in elective reports: a schematic overview.

depend on the quality of the examined elective reports. The screening process itself should be preferably performed by more than one author. This appears of utmost importance in order to fully identify all reports that discuss the desired endpoint in the free text.

In our personal opinion, elective databases are hardly suitable when it comes to the analysis of “soft” outcomes. This particularly affects the ethical dimension of IMEs and personal emotions, which are often hard to express in a written report that is publicly available online. The authors of this review deem it unlikely that many students will share very personal experiences in a publicly available elective testimony. Finally, rare outcomes and events (eg, pregnancies during an abroad elective) are extremely difficult to capture with an elective database-centered approach. Based on our experience, the following rule of thumb applies: The more specific and focused the research question, the lower the overall case number. Elective researchers must consider this when drafting a new study protocol for an analysis based on elective databases.

Research on medical electives is traditionally scarce.^{1,15} The number of research articles that appears with regard to this neglected topic each year is generally limited, any many questions remain unanswered.¹ For example, while benefits for elective students have been discussed and reviewed in detail,^{1,29–33} the impact on host institutions is still poorly understood.³⁴ Safety aspects of international medical electives have been rarely addressed, as well.^{35,36} More recently, we systematically addressed the issue of elective fees for the very first time,²² which has also gained little to no attention within the last years. These selective examples illustrate the inherent need for additional research on IMEs, yet factual opportunities are limited. Elective databases offer a cost-effective approach to address this lack of research, yet their potential scope and suitability for research is also limited as discussed before.

In this context, one may not forget the impact of the COVID-19 pandemic on the international elective landscape.^{1,37} The COVID-19 pandemic transformed the elective in an unprecedented way,¹ and for a period of approximately two years, abroad elective activities were severely limited.^{1,38,39} As such, researchers who prefer to use qualitative study designs might currently encounter troubles when attempting to recruit potential study participants that recently undertook

Table I Medical Elective Databases: an Overview

Elective Database	Language	Reference
Famulatur-Ranking	German	[20]
PJ-Ranking	German	[21]
The Electives Network	English	[24]
TUMSS Database	English	[25]
WAMSS Database	English	[26]

an elective. Simply put, these potential participants are either non-existent or very limited in their overall number. This further restricts research opportunities and should be thoroughly considered when evaluating the value of elective databases.

IMEs are traditionally popular among medical students, and the demand for elective opportunities has been growing before the pandemic.^{1,27} Electives play a vital role in the context of global and public health education.^{40,41} As with many didactic elements in the medical curriculum, electives are subject to an ongoing transformation,¹ partly depending on geopolitical and economical aspects.²⁷ This makes it clear that continuous research on electives is required. While elective databases could play an important role in this process, they might not be sufficient to answer all open questions with regard to IMEs. As part of a greater repertoire of study approaches, they could, however, prove useful to gain new insights into this poorly understood part of the medical curriculum. Elective database-based research could be a valuable supplement to traditional questionnaire- or interview-based medical elective research, potentially allowing for analysis on a larger scale. As with all study approaches, potential limitations have to be carefully considered and transparently discussed.

Conclusion

Elective databases offer numerous benefits, such as their size, their standardized reporting structure and the freely available content that may be used for many different types of research questions related to international medical electives. Then again, elective databases are rarely suitable for endpoints that may not be covered by the database-specific generic elective report structure. Whether elective databases are useful strongly depends on the specific research question and context. We argue that elective databases could be a valuable supplement to questionnaire-based or interview-based elective research, potentially allowing for larger and broader analyses not confined to single institutions.

Abbreviation

IMEs, International Medical Electives.

Ethics Approval and Consent to Participate

The present study is a literature review which did not require ethical approval.

Author Contributions

This narrative review was conceived or inspired by all authors. All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work. MAS drafted the original manuscript and RI contributed to reviewing and editing the manuscript prior to submission.

Funding

The authors received no financial support/funding. Open access publishing enabled with the support of the Open Access Publication Fund of the University of Freiburg.

Disclosure

The authors declare that they have no competing interests.

References

1. Storz MA. International medical electives during and after the COVID-19 pandemic - current state and future scenarios: a narrative review. *Global Health*. 2022;18(1):44. doi:10.1186/s12992-022-00838-0
2. Storz MA, Imafuku R. Why foreign medical students seek abroad elective experience in Japan: the German case. *TAPS*. 2023;8(4):53–56. doi:10.29060/TAPS.2023-8-4/CS3003

3. Serraino R, Owachi D, Byekwaso SN, et al. From the Global North to the Global South: preparing students for away rotations. *BMC Med Educ.* 2023;23(1):102. doi:10.1186/s12909-023-04085-8
4. Fotheringham EM, Craig P, Tor E. International medical electives in selected African countries: a phenomenological study on host experience. *Int J Med Educ.* 2018;9:137–144. doi:10.5116/ijme.5aed.682f
5. Willott C, Khair E, Worthington R, Daniels K, Clarfield AM. Structured medical electives: a concept whose time has come? *Global Health.* 2019;15(1):84. doi:10.1186/s12992-019-0526-2
6. Lu PM, Park EE, Rabin TL, et al. Impact of Global Health Electives on US Medical Residents: a Systematic Review. *Ann Glob Health.* 2018;84(4):692–703. doi:10.9204/aogh.2379
7. Nishigori H, Otani T, Plint S, Uchino M, Ban N. I came, I saw, I reflected: a qualitative study into learning outcomes of international electives for Japanese and British medical students. *Med Teach.* 2009;31(5):e196–201. doi:10.1080/01421590802516764
8. Holmes D, Zayas LE, Koefman A. Student objectives and learning experiences in a global health elective. *J Community Health.* 2012;37(5):927–934. doi:10.1007/s10900-012-9547-y
9. Lauden SM, Gladding S, Slusher T, Howard C, Pitt MB. Learning Abroad: residents' Narratives of Clinical Experiences From a Global Health Elective. *J Grad Med Educ.* 2019;11(4 Suppl):91–99. doi:10.4300/JGME-D-18-00701
10. Quaglio G, Nsubuga JB, Maziku D, et al. International medical electives in Sub-Saharan Africa: experiences from a 19-year NGO-driven initiative. *BMC Med Educ.* 2023;23(1):184. doi:10.1186/s12909-023-04154-y
11. Fruhstorfer BH, Jenkins SP, Davies DA, Griffiths F. International short-term placements in health professions education—A meta-narrative review. *Medical Education.* 2024;58(7):797–811. doi:10.1111/medu.15294
12. Versluis MAC, Jöbssis NC, Jaarsma ADC, Tuinsma R, Duvivier R. International Health Electives: defining learning outcomes for a unique experience. *BMC Med Educ.* 2023;23(1):157. doi:10.1186/s12909-023-04124-4
13. Matchett CL, Nordhues HC, Bashir MU, Merry SP, Sawatsky AP. Residents' Reflections on Cost-Conscious Care after International Health Electives: a Single-Center Qualitative Study. *J Gen Intern Med.* 2023;38(1):42–48. doi:10.1007/s11606-022-07556-8
14. Jolly B. A missed opportunity. *Medical Education.* 2009;43(2):104–105. doi:10.1111/j.1365-2923.2008.03264.x
15. Ramalho AR, Vieira-Marques PM, Magalhães-Alves C, Severo M, Ferreira MA, Falcão-Pires I. Electives in the medical curriculum – an opportunity to achieve students' satisfaction? *BMC Med Educ.* 2020;20(1):449. doi:10.1186/s12909-020-02269-0
16. Wu A, Choi E, Diderich M, et al. Internationalization of Medical Education — motivations and Formats of Current Practices. *MedSciEduc.* 2022;32(3):733–745. doi:10.1007/s40670-022-01553-6
17. Storz M. *PJ und Famulatur im Ausland.* Springer-Verlag. 2018. doi:10.1007/978-3-662-57657-1
18. Lucey CR, Johnston SC. The Transformational Effects of COVID-19 on Medical Education. *JAMA.* 2020;324(11):1033–1034. doi:10.1001/jama.2020.14136
19. Storz MA, Lederer AK, Heymann EP. German-speaking medical students on international electives: an analysis of popular elective destinations and disciplines. *Globalization Health.* 2021;17(1):90. doi:10.1186/s12992-021-00742-z
20. Luetkens T Famulatur-Ranking.de. Available from: <https://www.famulatur-ranking.de/>. Accessed July 07, 2024.
21. Luetkens T PJ-Ranking.de. Available from: <https://www.pj-ranking.de/>. Accessed July 07, 2024.
22. Beckschulte K, Lederer AK, Storz MA. Long-term trends in international medical electives fees: a database mining study. *BMC Med Educ.* 2024;24(1):152. doi:10.1186/s12909-024-05123-9
23. Storz MA. Clinical electives in China: trends, experiences, barriers. *Globalization Health.* 2022;18(1):96. doi:10.1186/s12992-022-00889-3
24. The Electives Network. Available from: <https://www.electives.net/>. Accessed June 15, 2024.
25. TUMSS. Electives Database. March 29, 2019. Available from: <https://www.tumss.org.au/electives-database-5/>. Accessed July 07, 2024.
26. WAMSS. Elective Database. Available from: <https://wamss.org.au/students/electives-and-exchanges/elective-database/>. Accessed July 07, 2024.
27. Storz MA, Lederer AK, Heymann EP. Medical students from German-speaking countries on abroad electives in Africa: destinations, motivations, trends and ethical dilemmas. *Human Res Health.* 2022;20(1):9. doi:10.1186/s12960-022-00707-2
28. Chmura M, Nagraj S. A scoping review of the ethical impacts of international medical electives on local students and patient care. *BMC Med Ethics.* 2024;25(1):5. doi:10.1186/s12910-023-00998-7
29. Hayashi M, Son D, Nanishi K, Eto M. Long-term contribution of international electives for medical students to professional identity formation: a qualitative study. *BMJ Open.* 2020;10(8):e039944. doi:10.1136/bmjopen-2020-039944
30. Ali S, Devi A, Humera RA, Sohail MT, Saher F, Qureshi JA. Role of Clinical Electives on Academic Career: a Cross Sectional Study. *J Adv Med Med Res.* 2020;2020:21–26. doi:10.9734/jamr/2020/v32i630428
31. Imafuku R, Saiki T, Hayakawa K, Sakashita K, Suzuki Y. Rewarding journeys: exploring medical students' learning experiences in international electives. *Med Educ Online.* 2021;26(1):1913784. doi:10.1080/10872981.2021.1913784
32. Grudzen CR, Legome E. Loss of international medical experiences: knowledge, attitudes and skills at risk. *BMC Med Educ.* 2007;7(1):47. doi:10.1186/1472-6920-7-47
33. Slifko SE, Violot NA, Becker-Dreps S, Pathman DE, Myers JG, Carlough M. Students with global experiences during medical school are more likely to work in settings that focus on the underserved: an observational study from a public U.S. institution. *BMC Med Educ.* 2021;21(1):552. doi:10.1186/s12909-021-02975-3
34. Renaud-Roy E, Bernier N, Fournier P. Host perspective on academic supervision, health care provision and institutional partnership during short-term electives in global health. *Med Educ.* 2020;54(4):303–311. doi:10.1111/medu.14027
35. Watson DA, Cooling N, Woolley IJ. Healthy, safe and effective international medical student electives: a systematic review and recommendations for program coordinators. *Trop Dis Travel Med Vaccines.* 2019;5:5. doi:10.1186/s40794-019-0081-0
36. Tyagi S, Corbett S, Welfare M. Safety on elective: a survey on safety advice and adverse events during electives. *Clin Med.* 2006;6(2):154–156. doi:10.7861/clinmedicine.6-2-154
37. Wang W, Li G, Lei J. The impact of COVID-19 on medical students. *GMS J Med Educ.* 2024;41(1):Doc10. doi:10.3205/zma001665
38. Agyei-Nkansah A, Adjei P, Torpey K. COVID-19 and medical education: an opportunity to build back better. *Ghana Med J.* 2020;54(4 Suppl):113–116. doi:10.4314/gmj.v54i4s.18
39. Egiz A, Storz MA. The COVID-19 pandemic: doom to international medical electives? Results from two German elective databases. *BMC Res Notes.* 2021;14(1):287. doi:10.1186/s13104-021-05708-3

40. Imperato PJ. A third world international health elective for U.S. medical students: the 25-year experience of the State University of New York, Downstate Medical Center. *J Community Health*. 2004;29(5):337–373. doi:10.1023/b:johe.0000038652.65641.0d
41. Niemantsverdriet S, Majoor GD, van der Vleuten CPM, Scherpbier AJJA. 'I found myself to be a down to earth Dutch girl': a qualitative study into learning outcomes from international traineeships. *Med Educ*. 2004;38(7):749–757. doi:10.1111/j.1365-2929.2004.01843.x

Advances in Medical Education and Practice

Dovepress

Publish your work in this journal

Advances in Medical Education and Practice is an international, peer-reviewed, open access journal that aims to present and publish research on Medical Education covering medical, dental, nursing and allied health care professional education. The journal covers undergraduate education, postgraduate training and continuing medical education including emerging trends and innovative models linking education, research, and health care services. The manuscript management system is completely online and includes a very quick and fair peer-review system. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <http://www.dovepress.com/advances-in-medical-education-and-practice-journal>