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Methodological Issues in Conducting Retrospective Record Reviews

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The retrospective record review, also known as medical record review, patient record review, clinical record review, retrospective chart review, retrospective chart audit, clinical chart review and chart review is a well-established research design in which obtaining pre-recorded, patient-centered data are thoroughly reviewed to answer one or more research questions or clinical queries (1, 2, 3). It is a popular methodology widely applied in many healthcare-based and clinical disciplines such as epidemiology, medicine, pediatrics, orthopedics, psychiatry and dermatology (1). It has also been used for professional education and residency training, quality assessment, inpatient care, and clinical research (1, 2).

Indeed, retrospective record review studies are systematic review of existing medical records, which typically used for understanding the burden of diseases and patterns of care in hospitals (1, 3, 4) measuring the clinical characteristics of diseases, examining the course and outcome of diseases over a follow up period, monitoring adverse events, studying attributes of patient population using service surveillance as well as investigating medical errors (1, 2).

The data used in such reviews could be as electronic databases, results from diagnostic tests, or hard copies of notes from health service providers (2) including nursing records, pharmacy records, inpatient case files as well as manually attendance registers. Other sources include disease registries, laboratory records, data retrieved from adverse event monitoring systems, clinical trial information and national demographic records (1, 2).

In order to use retrospective record reviews, effectively, it is required to adhere to specific guidelines and adequate planning to ensure its validity and reliability (1, 2, 5, 6, 7, 8). For preparation of the record review it is required that principle investigator prepare the study protocol (2, 5, 6, 9, 10) and contact stakeholders and check appropriateness of the records (6), select and train record screeners and medical reviewers (2, 5, 6, 7), arrange to explain and conduct the record review (5, 6), test the local measurement reliability and validity (1, 2, 10) and ensure arrangement of meeting room and materials (6, 7).

Methodological steps to conduct retrospective record review include formulating well-defined and clearly articulated research questions (2, 5, 7, 10), reviewing the published and unpublished literature (5), operationalizing the variables, considering sampling issues (sample size, sampling method, explicit inclusion and exclusion criteria and missing data) (2, 5, 7, 10), developing abstraction instrument, creating a data abstraction procedure manual (1, 2, 5, 7), addressing inter-rater and intra-rater reliability (1, 2, 7, 10) , conducting a pilot study to assess the feasibility of the planned protocol (2, 5, 10), monitoring the study progress through holding periodic meeting (6, 7) as well as maintaining confidentiality and ethical standards (1, 2, 5,

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10), analysis of the data and finally archiving of results for dissemination (1, 10).

It is notable that record reviews offer several advantages including being less resource-intensive so less expensive, the possibility of quickly evaluating a number of possible associations, getting information from large number of cases and conducting the study at times of convenience (1, 7, 9). Records, sometimes, have unique information that cannot be accessed in another ways (1, 2). Also, record systems often provide a sampling frame and so make researcher enable to conduct a random sampling (2). Moreover, records minimize recall bias (1, 2).

The disadvantages of record reviews include confronting incomplete, chaotically stored and missing data, dealing with particular types of systematic and random information bias (1, 2, 7), facing poor quality data and engaging in problems regarding access to the records, as it has to be sought through the record keepers who has possession or control of records (2). There are also questions about both internal and external validity of record reviews (7). They can identify hypothesis-generating associations requiring confirmation by prospective studies but not able to establish cause and effect relationships (7, 10).

In the scenario of record reviews, ethical issues need to be taken into account. Hence, ethical clearance should be sought from an Institutional Review Board (IRB) before starting data collection and subject to any changes to the protocol, especially while dealing with sensitive issues (1, 2, 5). Also, the subject of confidentiality should be explicitly specified for those who do the data extraction and any identifying information from the data set should be removed (1, 2). Additionally, only the data which is needed for answering the research question should be extracted (2).

Conclusion

The retrospective record reviews have long been recognized as a rigorous methodology with immense advantages and can play a pivotal role in advancing health research. However, they are more prone to bias, so researchers must be aware of some common pitfalls that, if not managed, can affect the validity and reliability of their data as well as the quality of their research. Adhering to the principles for planning and conducting proper record reviews should be kept in mind, as it can greatly enhance the methodological rigor of the study and improves the quality of retrospective record review research.

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