



## OPEN ACCESS

EDITED AND REVIEWED BY  
Cyrille Delpierre,  
INSERM Public Health, France

## \*CORRESPONDENCE

Sara Haddadi  
✉ sxh1241@miami.edu

RECEIVED 02 June 2024  
ACCEPTED 24 June 2024  
PUBLISHED 12 July 2024

## CITATION

Haddadi S, Dehghani M and D'Amato G (2024)  
Editorial: Delay in cancer diagnosis and  
factors affecting outcomes.  
*Front. Public Health* 12:1442764.  
doi: 10.3389/fpubh.2024.1442764

## COPYRIGHT

© 2024 Haddadi, Dehghani and D'Amato. This is an open-access article distributed under the terms of the [Creative Commons Attribution License \(CC BY\)](https://creativecommons.org/licenses/by/4.0/). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.

# Editorial: Delay in cancer diagnosis and factors affecting outcomes

Sara Haddadi<sup>1\*</sup>, Mehdi Dehghani<sup>2</sup> and Gina D'Amato<sup>1</sup>

<sup>1</sup>Division of Hematology, Sylvester Comprehensive Cancer Center, University of Miami, Miami, FL, United States, <sup>2</sup>Hematology Research Center, Shiraz University of Medical Sciences, Shiraz, Fars, Iran

## KEYWORDS

cancer, outcome, survival, delay in diagnosis, disparities (health)

## Editorial on the Research Topic

### Delay in cancer diagnosis and factors affecting outcomes

Delay in cancer diagnosis can result in a higher mortality rate and disease burden as well as a lower cure rate for cancer patients. Different factors can be related to the delay in cancer diagnosis including patient-related, healthcare system-related, and tumor-related factors. Our goal in this topic is to identify factors associated with the delay in diagnosis such as disparities and try to find applicable approaches to reduce them while investigating the factors affecting outcome. This can include diagnostic modalities, predictive models, and non-biologic factors affecting patients such as race, ethnicity, age, and patients' access to medical care and facilities. In the pandemic era, we faced extra new challenges which are also included in our discussion.

While diagnosis and management of cancer are time-sensitive, healthcare facilities were overwhelmed during the pandemic. The studies about the impact of the COVID-19 pandemic on cancer care can help the health systems and policymakers optimize the post-pandemic use of resources.

The impact of COVID-19 on outpatient visit volume in cancer patients was investigated by [Frisardi et al.](#) in a multicenter retrospective observational study. Although there was not any significant difference in the first pandemic wave, between COVID-free and COVID-mixed institutes and between the comprehensive cancer centers (CCCC) and community hospitals, later in 2021 the study showed a better outcome organizing COVID-mixed pathway in the CCCCs rather than to keep the Institutions COVID-free considering the patients' needs and convenience to cancer care.

Disparities can occur in different ethnic groups. According to [Chen et al.](#) American Indians have experienced an avoidance of medical care during the pandemic. The study identified more delays, cancellations, and medication inaccessibility to American Indians during the pandemic which could result in higher morbidity and mortality of cancer.

Besides the pandemic, there have been other factors affecting different patient groups for health care access. According to [Dhir et al.](#) in a study of adolescent and young adult (AYA) Lymphoma patients, young adults have the lowest rate of healthcare utilization. Some contributing factors include inadequate health coverage, lack of insurance, education, difficulties in transitioning from pediatric to adult care settings, and the lack of understanding in preventive health care measures. It ultimately can result in delays in diagnosis and advanced disease at presentation. Other factors affecting AYA

group to seek lymphoma health care include the variability in therapeutic approaches based on age, location, and providers as well as access to therapeutic clinical trials which could overall have a negative impact on the outcomes of this patient population. Non-biological factors have been shown to impact the survival of cancer. Similar studies in older patients with lymphoma have indicated disparities in outcome due to factors such as insurance, income and socioeconomic status. The strong association of non-biological factors with survival sheds light on finding opportunities to improve the outcome and survival of AYA or any similarly vulnerable groups by improving their access to cancer care.

Finally, in this Research Topic, we included a systematic review and meta-analysis on cancer care pathway intervals and implications for survival in patients with oral cancer.

There have been mixed results in previous studies about patient outcomes in association with the intervals of the care pathway. The diagnostic and treatment intervals were studied by [Fernandez-Martinez et al.](#) to find the impact on tumor stage at diagnosis and survival. The three studied intervals include the following: “the patient (first symptom to first presentation to a healthcare professional), diagnostic (first presentation to diagnosis), or treatment (diagnosis to start of treatment) intervals in adult patients diagnosed with primary oral cancer.” This study revealed the influence of socioeconomic status as a key factor in interval duration and implications for patient outcomes. Countries with a lower income have been shown to have longer treatment and patient intervals which were related to a later stage at diagnosis. Further studies are needed for evaluation of survival.

Besides the great efforts in retrospective reviews of the disparities and factors affecting cancer outcomes, there is a need for further prospective cancer studies such as lymphoma epidemiology of outcomes cohort which can reduce the different potential biases and limitations of previous retrospective studies. Such studies can improve the pathway of understanding different epidemiologic implications on cancer patients with different ethnic, age, and socioeconomic groups. The patient’s diagnosis and treatments, etc. in different regions and the outcomes of the patients can be studied on a large scale over time whether they went through the pandemic, dealt with post-pandemic effects, or at any other time. Meanwhile, the association of genetic and biological factors can be studied in these patients as well to clarify the role of non-biological factors

that can be mediated and reduced in the setting of many different biological factors (1, 2).

We aim to continue monitoring the factors affecting cancer outcomes or delays in diagnosis while further studies are needed to clarify factors affecting outcomes and disparities in different parts of the world. To address these factors, it is important to promote cancer awareness and education, improve access and delivery of healthcare, and increase communication and collaboration within the healthcare system. Ensuring timely diagnosis and treatment can impact cancer outcomes and patient survival.

## Author contributions

SH: Conceptualization, Data curation, Investigation, Project administration, Supervision, Validation, Writing – original draft, Writing – review & editing. MD: Writing – original draft, Writing – review & editing. GD’A: Conceptualization, Supervision, Validation, Writing – original draft, Writing – review & editing.

## Funding

The author(s) declare that no financial support was received for the research, authorship, and/or publication of this article.

## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

## Publisher’s note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

## References

1. Cerhan JR, Maurer MJ, Link BK, Feldman AL, Habermann TM, Jaye DL, et al. The Lymphoma Epidemiology of Outcomes cohort study: design, baseline characteristics, and early outcomes. *Am J Hematol.* (2024) 99:408–21. doi: 10.1002/ajh.27202

2. Cerhan J. *Lymphoma Epidemiology of Outcomes Cohort Years 6-10 (LEO) ClinicalTrials.gov: NIH* (2021). Available online at: <https://clinicaltrials.gov/study/NCT04996706> (accessed July, 6, 2024).