

Cosmos Publication Checklist

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Cosmos Publication Checklist

When you're ready to share your Cosmos findings, follow this checklist to make sure you've covered all your bases. Here, you'll do an in-depth review of your work to double-check that you accounted for data limitations, verify that you used SlicerDicer optimally for your query, and take final steps to prepare your findings to be published or otherwise shared.

Don't Forget
With great power comes great responsibility. Each Cosmos user is responsible for knowing and following the Cosmos Rules of the Road . As a user, you're responsible for your findings—including making sure your science is sound and your conclusions are properly validated.

Define Your Base Population

Your base population is critical to ensuring that your study is sound. In this section, verify that you used (or specifically decided not to use) the following key tools for defining your base population.

- **Use the Queue Full Session option for any Sneak Peek queries.** Draw conclusions from the full dataset only by turning off Sneak Peek. Due to the nature of random sampling, your data might look different in Sneak Peek when compared with the full dataset, especially for small populations.
- **Has any encounters? filter.** Cosmos patient and encounter counts tend to trend up, as more organizations are live with Epic in recent years than in the past. You can control for this by limiting your population to patients with at least one encounter in your date range.
- **Base Patient filter.** This filter limits your results to patients who had at least two face-to-face encounters in a two-year period. This helps ensure that only longitudinal charts are included in your cohort.

Review Known Biases, Limitations, and Data Quality Issues

Before you share your findings, it's important to review (or re-review) the known limitations related to the data that you're using to ensure nothing's impacting the conclusions you're drawing in your study. Review for any interpretation biases to ensure conclusions are presented in a fair and equitable way to the study population.

- **Review the [Cosmos Data Science White Papers](#)** to ensure you understand the overall story behind the data you're analyzing—the nuances of how it was originally documented, how it was standardized, and how it was loaded into Cosmos.
- **Review the [Data Encyclopedia](#) article for each data domain used in your study.** Review the Data Population section, and if applicable, the Known Biases and Limitations and Mapped Data sections. Make sure you understand and account for any implications on your study if your data element:
 - Is noted to have low or inconsistent usage across the community (due to software version or workflow variability).
 - Is noted as currently impacted by a known data quality issue.
 - Is impacted by organization-level data filtering (that is, some organizations are filtering data from Cosmos due to state or local requirements).
 - Is populated in the EHR manually by a human as opposed to discretely resulted/measured.
- **Review the [Data Quality](#) article** to determine whether there are any active known data quality issues that could be impacting the data in your study.
- **Review the [Data Quality Metrics dashboard](#)** to confirm that relevant data elements match your expectations and verify that your analysis has accounted for any differences.
- **Review your SlicerDicer usage to ensure that you're using advanced features correctly.** Review the SlicerDicer training materials in the [Cosmos Portal & Analytics Resources](#) (Documents section > SlicerDicer Training folder). You can also use the [library of learning dashboards](#) (Dashboards > Cosmos Learning Home) in the Cosmos portal to see examples of using advanced SlicerDicer features.

Validate Your Findings and Prepare to Share

Before you're ready to publish or share your findings, take the following preparation steps to ensure that everything is ready to go.

- **Check your findings against recent literature, media, or another dataset** as a gut check.
- **Have a super user at your organization review your queries and conclusions.**
- If you know that other Cosmos users are studying the same topic (such as from the Cosmos UserWeb forum), **compare your results with these users.**
- **Consider peer review to validate your study.** Have an independent user or team attempt to answer the same study goal without the details of your methods.
- **Review your organization's internal policies and complete any additional review steps needed.**
- **Evaluate the equity of your findings and presentation.** Consider how your results might impact different demographic groups and consult with representatives of affected populations when appropriate.
- If you're applying for an NIH grant for a project using Cosmos, **you can use [this document](#) as a template for your DMS Plan.**

Publish or Share Your Findings

If you've verified all the above and you're feeling good about your study—congratulations! You're ready to publish your results or share them at a conference, on social media, or other venue of your choice. Take these final steps to ensure your findings are ready to be shared.

- **Transfer files from the Data Science Virtual Machine.** If you're a data science user, you need to be aware of the process for transferring data science files, which requires a manual review process.
 - The goal of this process is to prevent export of line-level data and reduce the risk of reidentification. Counts that are 10 or fewer should be masked as <11. Other values that can be used to calculate counts of 10 or fewer should also be masked. Refer to the [CMS Cell Suppression policy](#) for details and examples.
 - Request a file transfer by emailing your Cosmos representative. Once approved, the Epic Cosmos Security team will migrate your file to the desired location. The expected turnaround is normally about one week.
- **Notify Epic about your publications or presentations based on Cosmos data.** Before you use Cosmos data in a publication or presentation, notify Epic by emailing CosmosPublications@epic.com.
 - Note that while it is not a requirement that you do this *before* publishing, all health systems participating in Cosmos *must* report publications using Cosmos data on a semi-annual basis as outlined in the [Cosmos Rules of the Road](#). By reaching out before you publish, the Epic team will complete a review of your work to help you avoid common pitfalls and help you follow best practices for representing your work in Cosmos before you publish.
 - A member of the publication review team will respond with feedback on any potential biases or data quality considerations that should be addressed in your data definitions.
- **Add the following Cosmos attribution to your publication:** *Data used in this study came from Epic Cosmos, a dataset created in collaboration with a community of health systems using Epic representing more than <XXX> million patient records from over <XXX> hospitals and <XXX> clinics as of <Month, Year>. The community represents patients from all 50 states, D.C., Canada, Lebanon, and Saudi Arabia.* The current count values for patients, hospitals, and clinics are available on cosmos.epic.com.
 - Confirm you're referring to Epic and its applications correctly. For example, Epic Cosmos should only have the first letter of each word capitalized.
 - If you worked with collaborators outside of the Cosmos community who cannot access Cosmos data, consider clarifying that in your publication.
- If you're sharing your findings and including SlicerDicer screenshots outside of peer-reviewed journals (such as on social media, posters, or news outlets), **do the following for each screenshot you plan to share:**
 - a. Create a description for your SlicerDicer session containing the following text: *Created using Epic Cosmos. Analysis performed by <your name> and internally reviewed by <reviewer name> at <your organization> on <date>.*
 - b. Right-click on your graph in Cosmos portal, copy it, and choose to include the description. The graph is now ready to share.

If your study was externally funded, you're required to share your results with Cosmos community. Review the sections below to find the scenario that matches how you plan to share (or not share) your results and follow the guidance for that section.

My research was published in a journal

If your externally funded Cosmos research was accepted for publication in a peer-reviewed journal, please send a link to your published paper to CosmosPublications@epic.com. Information about your publication, including basic details about the associated Cosmos project and a link to the abstract, will be made available for other users in the community on [the Cosmos Publication and Funded Studies dashboard](#) within the Cosmos portal.

My research was shared as a poster or presentation at a conference

If you shared your externally funded Cosmos research at a conference or event and did not otherwise pursue publication in a journal, please send a copy of your presentation or poster to CosmosPublications@epic.com. If a recording of your presentation is available, we welcome you to share a link to the recording as well. An abstract of your findings will be made available in the Cosmos portal for the Cosmos community.

My research was not accepted for publication, or I do not intend to publish my results

We realize that not every experiment or study is going to yield significant results that are worthy of a peer reviewed journal article. In this scenario, you'll publish an abstract in Cosmos to provide transparency to both researchers and health systems. Researchers can use the abstract to help inform their own research in related fields in a transparent, open science manner.

Additionally, participating health systems can understand how their data was used in the generation of medical knowledge. As mentioned above, findings from all externally funded studies completed with Cosmos are required to be shared with the Cosmos community. If your study is not published elsewhere, submit an abstract to be shared in the Cosmos portal. We also welcome feedback on any challenges encountered with your journal submissions.

Abstracts can be submitted using the below format to CosmosPublications@epic.com:

Study Title: A few words describing your study and findings.

Example: "Associations between Glycemic Control and XX Medication in Diabetic Patients"

Study Team: Name, credentials, and affiliations for those that participated in the study.

Example: "Cleveland R. Brown, MD, Epic Health System; Peter Griffin, PhD, Epic School of Medicine"

Objective: Brief, 1-3 sentences on what your original study aims were (can be copied from proposal).

Example: "This study aimed to investigate the association between medication type and treatment outcomes in patients with diabetes."

Methods: Summarize the populations, variables, and outcomes used in the analysis and key mathematical techniques used to generate any findings.

Example: "A retrospective cohort study was conducted using Cosmos, encompassing XX patients diagnosed with diabetes. Diagnosis of diabetes was confirmed using the Cosmos Registry for Type II diabetes, and treatment outcomes were measured based on glycated hemoglobin (HbA1c) levels and hospitalization rates. Multivariate regression models were employed to analyze the impact of medication adherence on treatment outcomes,

controlling for potential confounders."

Results: Use numbers to represent your findings as they relate to the goals of your aim(s).

Example: "The study included a total of 10,000 patients with diabetes, with an average follow-up period of 2 years. Findings revealed no significant correlation between medication type and glycemic control. Patients prescribed XX medication sustained 10% reduction in HbA1c levels compared to 9.3% in those prescribed YY medication."

Conclusion: Summarize in 1-2 sentences how your findings generalize to overall medical knowledge.

Example: "The findings emphasize the need for interventions and strategies aimed at enhancing other aspects of medication management like medication adherence that could explain the differences in glycemic control."

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