LINEAGE

DATA FOR THE
COMMON GOOD

Executive Summary

The "**L**ynch syndrome **IN**tegrative **E**pidemiology **A**nd **GE**netics" (**LINEAGE**) Consortium is dedicated to collaboratively improving the lives and longevity of individuals and families with Lynch syndrome. Our mission is to conduct high-quality collaborative research by pooling standardized and longitudinally collected clinical data, patient-reported outcomes, and by forming a digital biobank linked to this rich clinical data.

The consortium brings together leading experts and institutions with the shared goal of advancing scientific understanding and clinical outcomes for those affected by Lynch syndrome. Through regular meetings and joint initiatives, members exchange knowledge and best practices, fostering an environment of innovation and cooperation. In addition, the LINEAGE Consortium actively works to engage patient communities and stakeholders to ensure that its research efforts remain relevant and beneficial to the diverse populations it serves.

Consortium Objectives

1. Establish a longitudinal cohort of individuals with Lynch syndrome
2. Collect standardized, longitudinal clinical data and biosamples to advance understanding of Lynch syndrome epidemiology and gene-environment interactions
3. Facilitate collaborative studies, manuscripts, and funding applications that improve cancer prevention and early detection in Lynch syndrome

Membership Benefits & Opportunities

- Opportunities to lead and participate in multi-center studies across epidemiologic, mechanistic and interventional domains
- Authorship opportunities via transparent authorship pathways and publication policies
- Collaborative grant support, including multi-PI grants, letters of support, and template language
- Access to de-identified aggregate data for hypothesis generation
- Digital biobank access for IRB-approved ancillary studies through standardized DUA/MTA processes
- Shared infrastructure (SOPs, data dictionaries, REDCap templates, and onboarding toolkit to streamline start-up and ensure compliance)
- Mentorship and leadership opportunities
- Patient and stakeholder engagement channels to co-design studies and materials
- Recognition and visibility through co-authorship on LINEAGE outputs; presentations and publications

Membership Requirements

☐ Existing cohort (or willingness to develop a cohort) of individuals with Lynch syndrome receiving care at your institution
☐ Site investigator to attend quarterly Steering Committee meetings and oversee local research efforts
☐ Institutional capacity to execute appropriate contractual/legal agreements
☐ Research infrastructure to obtain and maintain local ethical and regulatory approval
☐ Designated personnel to enter baseline and annual clinical data into the LINEAGE Data Commons

Vision, Mission, and Values

The **VISION** of the "Lynch syndrome INtegrative Epidemiology And GEnetics" (LINEAGE) Consortium is to work collaboratively to improve the lives and longevity of individuals and families with Lynch syndrome.

The **MISSION** of the LINEAGE Consortium is to improve Lynch syndrome care through high-quality collaborative research. This consortium will provide intellectual and infrastructure support to facilitate development of research questions, collection of standardized data and biospecimens, support of grant applications, and generation of collaborative manuscripts.

The **VALUES** of the LINEAGE Consortium are to be collaborative, inclusive, adaptive, equitable, high-quality, transparent, and motivated.

Consortium Objectives

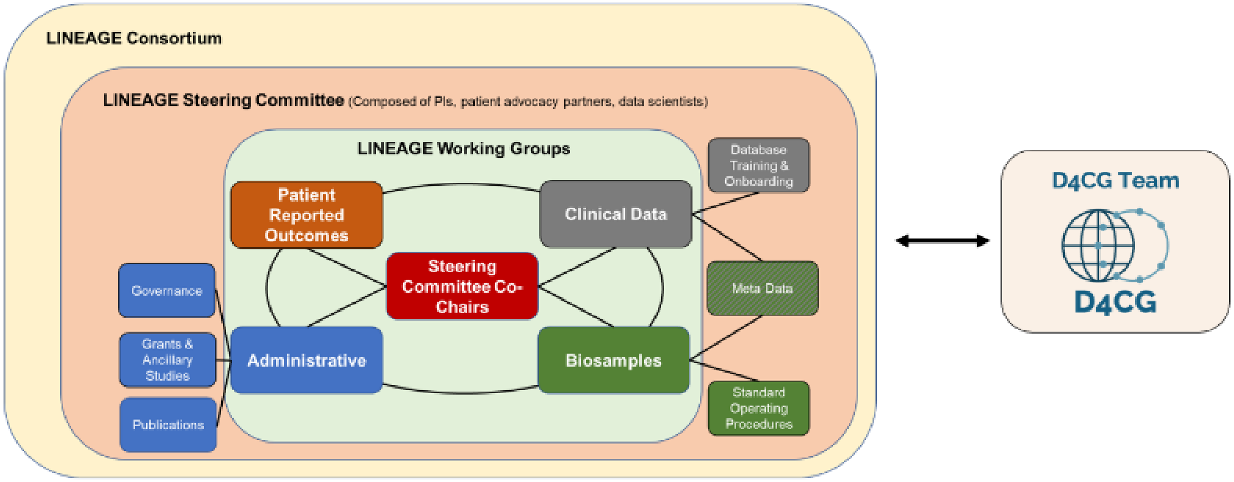
1. Establish a longitudinal cohort of individuals with Lynch syndrome
2. Collect standardized, longitudinal clinical data and biosamples to elucidate Lynch syndrome epidemiology and gene-environment interactions
3. Promote mechanistic studies and intervention trials to improve cancer prevention and early detection in Lynch syndrome

Governance

LINEAGE is not led by an individual institution or principal investigator but is governed collaboratively by the participating institutions via a Steering Committee (led by co-chairs), Working Groups, and members at large. A Memorandum of Understanding (MOU), which each site signs to join the consortium, outlines the governance structure, and membership requirements in detail.

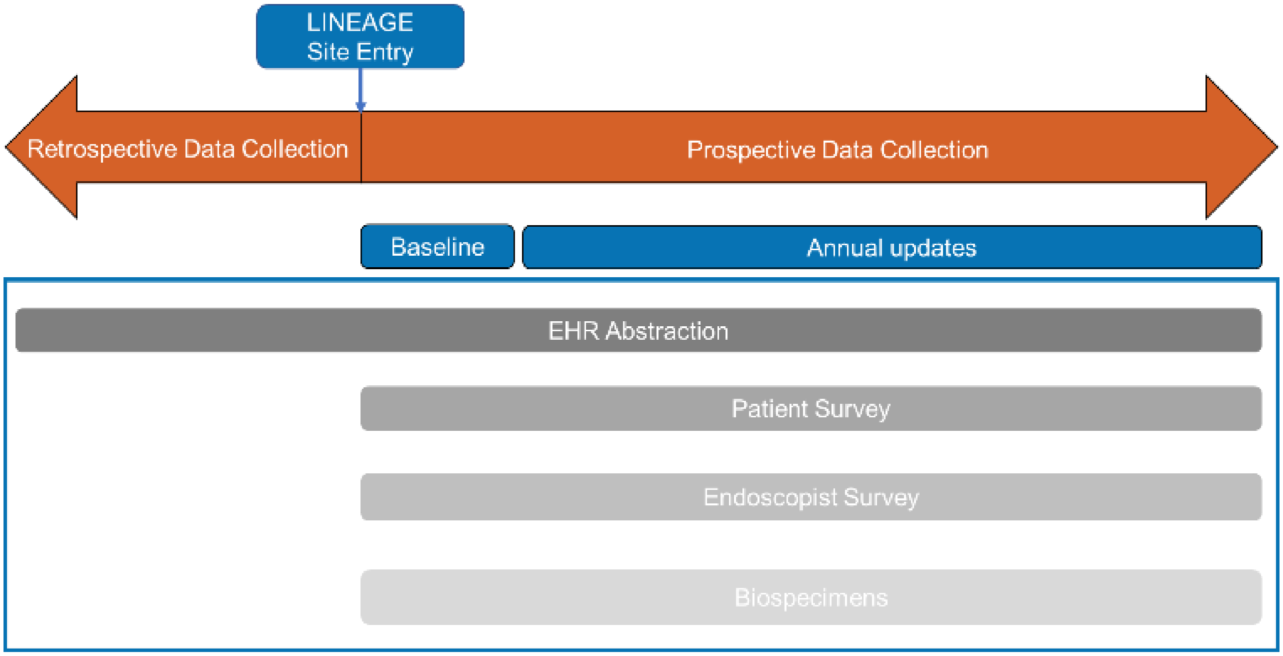
Data for the Common Good is an independent data commons provider. Though based at the University of Chicago, they are not formally tied to any LINEAGE investigator at University of Chicago and the consortium remains whether there are active University of Chicago LINEAGE PIs. Because they are based at University of Chicago, all legal agreements are executed through this institution. The LINEAGE Consortium has full control of the data collected within the LINEAGE Data Commons (LDC). If Data for the Common Good dissolves, the data will remain accessible to the consortium, however we another data commons provider will be sought.

All LINEAGE investigators are invited to propose use of data. We are formulating publication and ancillary study protocols that will establish an equitable and transparent process for proposing and executing research from the LDC.



Study Design & Initial Aims

LINEAGE is a longitudinal cohort which includes data sharing at baseline with annual updates. All sites are required to share electronic health record data and institute a protocol to collect and share patient-facing and endoscopist data. Biosample collection is optional and will populate a digital biobank.



Initial research aims include:

I. **Lynch Associated Cancer Risk** with adjustments for important risk modifiers (such as co-morbidities, genotype, variant details, family penetrance, exposure to aspirin, exposure to surveillance procedures, risk reduction surgeries, etc.)
    a. Overall lifetime risk
    b. Risk after LS diagnosis

II. **Luminal lesion detection and cumulative lesion burden** adjusting for procedure exposure/quality and other risk modifiers
    a. Gastric and duodenal
    b. Colorectal and ileal

III. Characterization of **post-colonoscopy colorectal cancer**
    a. Proportion of all cancer cases diagnosed within 6-36 months post-colonoscopy
    b. Root cause analysis based on World Endoscopy Organization framework

Note: There are many more planned projects, however these are example projects for which the LINEAGE data dictionary has been beta tested.

Need More Information Before Deciding to Join?

Email Swati.Patel@cuanschutz.edu and Sandra.Boimbo@cuanschutz.edu to get a copy of the protocol and variable list to see depth of data collection required.

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Summary of Key Steps to Join LINEAGE

1. **Consortium Membership:** Official membership in the consortium requires signing our Memorandum of Understanding (MOU). This is not a legally binding document, but codifies our goals, values, plans and membership expectations. This document will need to be reviewed and signed through your institution-specific standard processes. Some sites require legal review, others do not. Please inquire with your research administration. Contact Suzi Birz (suzi.birz@bsd.uchicago.edu) to obtain a copy of the current MOU and initiate the process or learn about other ways to participate in LINEAGE.

2. **Local regulatory approval:** Each site needs to obtain and maintain local IRB approval for collection and storage of clinical data, annual patient survey, and annual endoscopist survey.
    a. For sites *without* an existing protocol, a LINEAGE protocol (and all associated materials) is available in the dropbox. This will need to be adapted to your local language/policies and consent templates.
    b. For sites that already have protocols in place, PI can review the LINEAGE protocol and determine whether an amendment is needed to cover aspects of LINEAGE that are not included in local protocol or whether a new protocol should be submitted. A key point is whether your existing protocol/consent process allows for sharing de-identified data with external parties (LINEAGE) for additional research.

   Notes:
   - Biosamples: LINEAGE is organizing a *virtual* biobank so that investigators can be aware of what samples are available across the consortium for ancillary studies. Collection is optional and based on local resources. All samples will be stored locally. Any ancillary projects will be proposed and reviewed per the "Ancillary Project SOP." After projects are approved and those with samples agree to proceed, appropriate material transfer agreements will need to be executed prior to any sample sharing. The site PI has complete provenance over samples.
   - Some sites may elect to collect long-form informed consent from participants for all three, or some aspects of the study (EHR abstraction, survey, biosamples). Others may elect to have a "de-identified data abstraction protocol" and a separate "patient survey protocol" (which may not require full consent, but "post-card" consent). LINEAGE defers to site PIs about what works best for their institution and requires PI to have oversight and comply with all local policies and regulations.

3. **Data collection/Harmonization:** LINEAGE has a data dictionary that has been built within REDCap and beta tested to ensure covariates and outcomes of interest can be pulled, coded and analyzed. Sites are highly encouraged to use this data dictionary as it will ensure they can contribute to all planned research projects. This data dictionary has been built in REDCap and also includes the patient-facing survey. Furthermore, this data dictionary is being mapped to the LDC by Data for the Common Good, thus for sites using this REDCap, it is envisioned that limited additional work will be required to harmonize the data and transfer it to the Data for Common Good for ingestion in the LDC.
    a. For sites using the LINEAGE data dictionary, the REDCap metadata project along with instructions on how to upload this locally will be provided. Sites are responsible for ensuring they have all IRB approvals in place for local collection/storage before entering data. Data for the Common Good will guide exactly what form the de-identified data will need to be exported in so that it can be entered into the LDC seamlessly (since LINEAGE REDCap will be mapped).
    Notes:
        - We STRONGLY recommend sites do not modify the REDCap fields/answer choices. Sites of course can add/modify elements of the REDCap to comply with local policies or for local administrative/research purposes, but be aware that changing any data collection elements will result in changes to data mapping back to LDC. If this is the case, your site will be responsible for re-mapping data to the LDC.

  - We have designated mandatory and optional fields within the REDCap metadata project based on (1) scientific Delphi consensus by the LINEAGE steering committee, (2) needed fields to participate in the core LINEAGE projects, and (3) database logic functionality: for example, to minimize data entry burden annually, we have set questions to not be asked again on annual updates if unmodifiable (for example sex at birth or various surgeries). For these logic elements to work, the entries must be filled out.

   b. For sites with existing databases/registries, available data will need to be mapped to the LDC. A data specialist (registry manager, analyst) at the site will need to work with Data for the Common Good to map variables to the LDC.
   Note: This may be incomplete for variables needed in LINEAGE, thus you may not be able to contribute to all planned projects.

4. **Legal agreements:** Because Data for the Common Good is based at the University of Chicago, all legal agreements will be executed through this institution. Contact Suzi Birz (suzi.birz@bsd.uchicago.edu) to initiate the process.
   a. Data Contribution Agreements (DCA): each institution will execute a DCA with University of Chicago to share data into the LDC.
      i. Some sites already have a master agreement with University of Chicago D4CG because there are other consortia that are managed by Data for the Common Good. For these sites, an addendum can be added to the existing agreement.
      ii. For sites that do not have existing DCAs with Data for the Common Good, a new agreement will need to be executed.
   b. Data Use Agreements (DUA) with the University of Chicago: Once data is available in the LDC, investigators can propose projects and once reviewed/approved per the ancillary study/publication policy, appropriate DUAs will be executed with the investigators so that line-level data can be shared.

5. **The LINEAGE Study Resource Collection ©:** Materials developed by the LINEAGE Steering Committee Members. This includes a draft protocol, patient-facing materials, the plug-and-play REDCap data dictionary, data entry guide, training tools/videos and standard operating procedures/manuals. Extensive collaborative effort has gone into developing these resources for consortium members. The consortium is making these openly available under a Creative Commons License with the intent of promoting high quality, standardized research, and to remove barriers to participation by providing these materials open-access. Intended for non-commercial use only.
   The LINEAGE Study Resource Collection is housed in Drop Box (Password is LINEAGE279!):
   https://www.dropbox.com/scl/fo/4ckhkf0pqzr439kgjlzz0/ABFwKJDLMStf-ZFj_r8Ddhs?rlkey=hxaynmbjvh89ic9ehdwfyejqb&st=81h3aeh2&dl=0

Summary of Next Steps

- ☐ Complete this site interest questionnaire
- ☐ Email Swati.Patel@cuanschutz.edu and Sandra.Boimbo@cuanschutz.edu to
  - Gain access The LINEAGE Study Resource Collection (draft protocol, data dictionary, data entry guides/videos, SOPs/manuals)
    Note: *The LINEAGE Study Resource Collection* © 2025 by *The LINEAGE Consortium* is licensed under Creative Commons Attribution-NonCommercial 4.0 International. To view a copy of this license, visit https://creativecommons.org/licenses/by-nc/4.0/.
  - Be added to steering committee meeting calls
- ☐ Reach out to Suzi.Birz@bsd.uchicago.edu for steps to participate in the consortium and initiate data contribution/use agreements