



SYNTHEA EMPOWERS DATA-DRIVEN HEALTH IT



Synthea™ is an open-source, synthetic patient generator that models the medical history of synthetic patients. Our mission is to provide high-quality, synthetic, realistic but not real, patient data and associated health records covering every aspect of healthcare. The resulting data is free from cost, privacy, and security restrictions, enabling research with Health IT data that is otherwise legally or practically unavailable.



Academic Research

The models used to generate synthetic patients are informed by numerous academic publications. Our synthetic populations provide insight into the validity of this research and encourage future studies in population health.



Health IT Industry

Synthetic data establishes a risk-free environment for Health IT development and experimentation. This includes the evaluation of new treatment models, care management systems, clinical decision support, and more.



Policy Formation

The effects of healthcare policy can be simulated, quickly and repeatably, in a synthetic population. Using this iterative approach, Synthea can guide policy with patient models at the state and county level that are free from privacy restrictions.

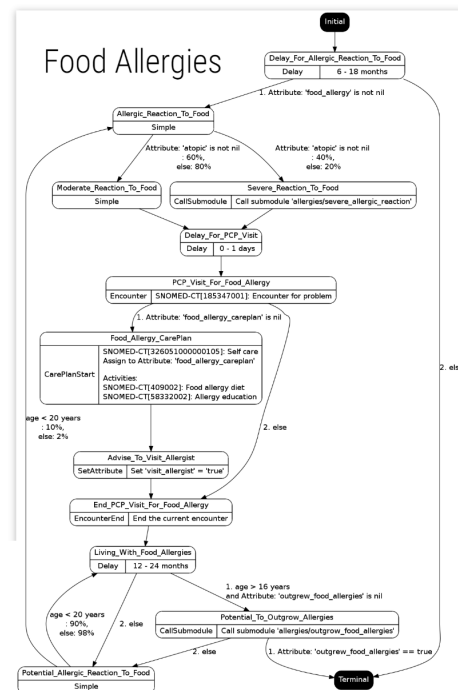
THE TECHNOLOGY BEHIND PATIENT SIMULATION

Generic Module Framework

Modeling the Progression and Treatment of Disease

Synthea's Generic Module Framework (GMF) enables the modeling of various diseases and conditions that contribute to the medical history of synthetic patients. Each patient is simulated independently from birth to present day. Their diseases, conditions and medical care are defined by one or more generic modules.

Each module models events that could occur in a real patient's life, describing a progression of states and the transitions between them. These modules are informed by clinicians and real-world statistics collected by the CDC, NIH, and other research sources. Synthea started with modules for the top ten reasons patients visit their primary care physician and the top ten conditions that result in years of life lost. Check out our [full gallery of modules](#) to see what we've added since.


[FHIR R4](#)
[FHIR STU3](#)
[FHIR DSTU2](#)
[CCDA](#)
[CSV](#)

Patient Data

Modern Healthcare and Research Data Standards

For each synthetic patient, Synthea data contains a complete medical history, including medications, allergies, medical encounters, and social determinants of health. This data can be used without concern for legal or privacy restrictions. To support developers, clinicians and researchers alike, Synthea data is exported in a variety of data standards, including [HL7 FHIR®](#), [C-CDA](#) and [CSV](#).

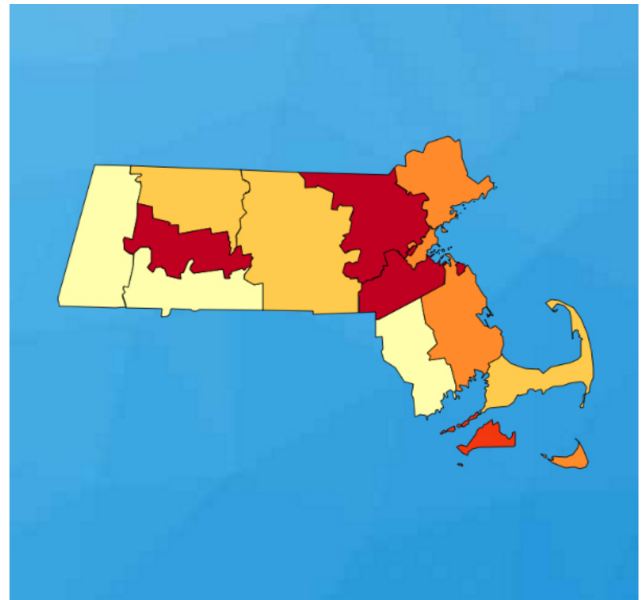
Use the buttons to the left to download over a thousand sample patients in the available formats. You can also [build the project yourself](#) to generate your own patients. For help or more information, [contact us!](#)

Empowering Health IT

Cutting Edge Research and Development

With a virtually limitless supply of synthetic patients, Synthea provides the foundational health data that researchers, clinicians, policy makers and software developers need to architect the next generation of Health IT solutions.

Award-winning **SyntheticMass**, is one of the applications already enabled by Synthea patient data. SyntheticMass provides users API access to patient data on city, town, and individual level, providing a sandbox to empower Health IT innovators to explore new healthcare solutions.



OPEN-SOURCE COLLABORATION

Synthea™

Synthea™ is driven by a global community of developers, academics and healthcare experts. For those with clinical or domain expertise, visit [our contribution page](#) to see a list of modules that need professional review. Developers can visit Synthea's [GitHub page](#) to learn how to build and contribute to the project. Have any feedback on the current Synthea implementation? [Create an issue](#) on our github page, or [send us an email](#).



Collaborate on GitHub



Give us your feedback

The Standard Health Record Collaborative

Synthea was started at The MITRE Corporation as part of the [Standard Health Record Collaborative \(SHRC\)](#), an open-source, health data interoperability effort. The Collaborative's focus is to develop a Standard Health Record (SHR) and the technological infrastructure that drives health innovation. Check out the [SHR Specification Viewer](#) to provide feedback on the current iteration of the SHR.



Synthea



Standard Health Record



Synthetic Mass

The MITRE Corporation

The [MITRE Corporation](#) is a not-for-profit company working in the public interest, operating multiple Federally Funded Research and Development Centers (FFRDCs). MITRE cannot compete for anything except the right to operate FFRDCs. This lack of



anything except the right to operate FFKDCS. This lack of commercial conflicts of interest forms the basis for MITRE's objectivity and subsequent ability to inform critical government and industry initiatives.

MITRE has been involved in the creation and growth of many open-source projects including Synthea and other Health IT initiatives. To learn more, visit the [MITRE Open-Source Project Page](#) for a list of the projects that you can contribute to, and check the contact section below for other opportunities at MITRE.

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Open-Source Projects

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