Improve patient matching in Epic® Identity™ with a simple plug-in

Verato® cloud-based service can resolve patient matches that elude Epic Identity and improve satisfaction and safety across the organization.

The abstract

Healthcare organizations across the country have adopted Epic as a system-wide standard and now rely on Epic as the backbone of their record management and operations. Epic Identity is a competent patient record management system, but it is not the most sophisticated technology for patient matching. Unfortunately, persistent patient matching issues create serious problems — causing duplicate records, overlays and missed matches that degrade care, increase costs and impede revenue collection.

Verato has created a simple but powerful service that improves Epic Identity's patient matching without disrupting any of its core function. This plug in service — Verato Auto-Steward® — is used to resolve identity matches that Epic Identity cannot resolve by itself, thus avoiding the creation of new duplicate records or requiring teams of data stewards to process them manually. It doesn't require any customization, does not disrupt Epic, and is easy to deploy.

Verato offers a new and simple approach that increases patient matching accuracy at significantly lower cost and less effort than manual data stewardship.

verato

verato

Patient identity is at the core of EMR success

A fundamental goal of an enterprise Electronic Medical Record (EMR) system such as Epic is to present a complete and accurate view of patients to all clinicians across the organization. When clinicians encounter duplicate medical records or missing information within their EMR, they lose trust in the system and this impairs EMR adoption — undermining the immense investment.

Epic Identity is a Master Patient Index (MPI) that acts as the source of truth for patient records within the Epic ecosystem. While it is necessary for Epic to provide an MPI, it is not nearly as sophisticated or accurate as a purpose-built, standalone MPI. But because it is tightly integrated with all other Epic modules, Epic Identity is an essential component of the Epic ecosystem. Epic Identity relies on relatively simple matching algorithms that must be supplemented with manual human-based stewardship to resolve all but the most obvious patient matches. Typical medical record duplicate rates of 10-20% can take months or years to resolve manually.[1]

This high duplicate rate results in providers being unable to access or send records, which results in redundant testing, impaired clinical care, and missed revenue. Duplicate records can cost $96 per record just to resolve, but even more staggering is the $1,100 cost per patient of redundant tests and delayed treatments caused by duplicate records.[2] These financial costs prevent organizations from realizing the true value of their enterprise EMR.

Typical medical record duplicate rates of 10–20% can take months or years to resolve manually.

Verato uses big data and a groundbreaking Referential Matching™ approach to automatically resolve identity matches before they enter the data stewardship queue

Rather than just using algorithms to compare EMR registration data like Epic Identity, Verato Auto-Steward accesses a massive referential database that is pre-populated with pre-mastered and continuously updated demographic data spanning the entire U.S. population. It leverages this pre-mastered database as an "answer key" to match and link patient identities that other patient matching solutions can never match. This approach is called Referential Matching and Verato Auto-Steward brings the power of referential matching to Epic.

[1] CHIME: National Patient ID Challenge

[2] Ponemon Institute: 2016 National Patient Misidentification Report

verato

How Epic Identity manages matches

Epic Identity, like most EMR-based MPIs, uses a weighted deterministic matching process to compare patient demographic data and thus match patient records.[3] Typos and misspellings, out-of-date values, and missing data elements often prevent the Epic rules from matching records that belong to the same person. In these cases, Epic Identity creates "tasks" for data stewards to manually review and judge as to whether they represent the same patient.

Data stewards resolve tasks by manually reviewing records, managing their work through an interface within Epic Identity. They are often reviewing multiple records that have significant concurrence and discrepancy in demographic data, which has made it impossible for Epic Identity to decide. As such, it is up to the data steward's judgment to determine whether two records are the same — a time-consuming and difficult effort.
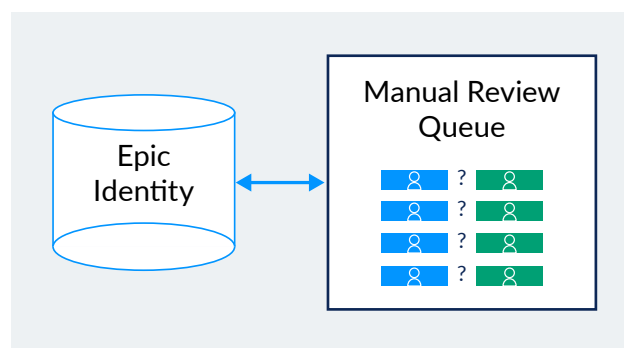
Verato Auto-Steward uses the unique Referential Matching approach to automatically resolve tasks before they enter the data stewardship queue.

	Patient A	Patient B	Patient C
IDENTIFIER	1234	457	9876
NAME	Kathy Smith	Katherine Jones	Cathy Jones
GENDER	F	F	F
DOB	1968-08-14	1968-08-14	1968-08-14
SSN	456-34-6547	456-34-6547	
ADDRESS	?	?	?
LINE 1	123 Main St.	200 S Madison St.	123 Main St.
LINE 2	Apt. #1	Apt. #1	
CITY	Springfield	St. Louis	Springfield
STATE	MO	MO	MO
PHONE			
AREA	214	815	815
NUMBER	456-5642	987-4567	987-4567

[3] Journal of AHIMA: ONC Patient Identification Matching Final Report February 2014
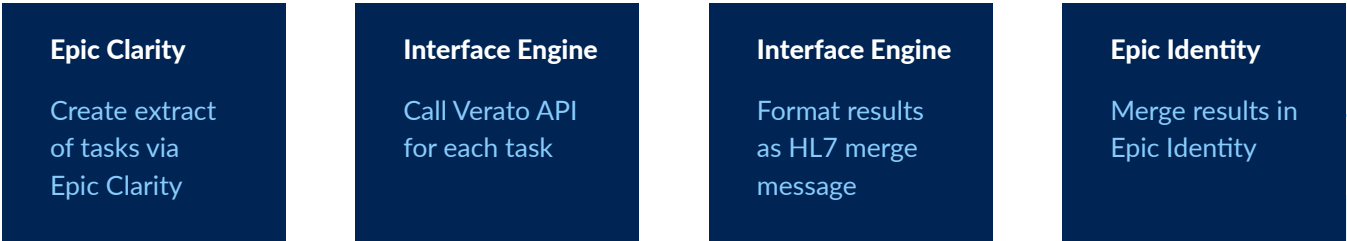
verato

How Verato Auto-Steward resolves the manual review queue

Verato Auto-Steward is designed to make other MPIs work better. The service resolves potential matches before they enter the data stewardship queue. Epic matching algorithms rely on head-to-head matching approaches. As an illustration, Epic may have two patient records: one for Katherine Jones, and one for Kathy Smith. When Kathy got married, she also moved and changed her last name, so, much of her demographic data changed since she last visited her physician. Using just the presented demographic data, Epic Identity could never declare these patients to be a match, but might flag the two records for manual review because the SSN was the same. By contrast, Verato Auto-Steward would compare each of these two records to the Verato reference record, which would contain the old and new demographic data for Kathy. Since both records would individually match to the same Verato reference record, Verato would conclude that they match to each other.

Epic Identity connects to Verato through standard interfaces. Here's how it works: Epic Clarity creates "analytical reports" that are used to extract manual review tasks from Epic Identity. These tasks are sent to Verato via API, where Verato resolves the tasks. The resolved duplicates can then be merged in Epic using simple HL7v2 messages. The end-to-end process involves just a few easy steps:
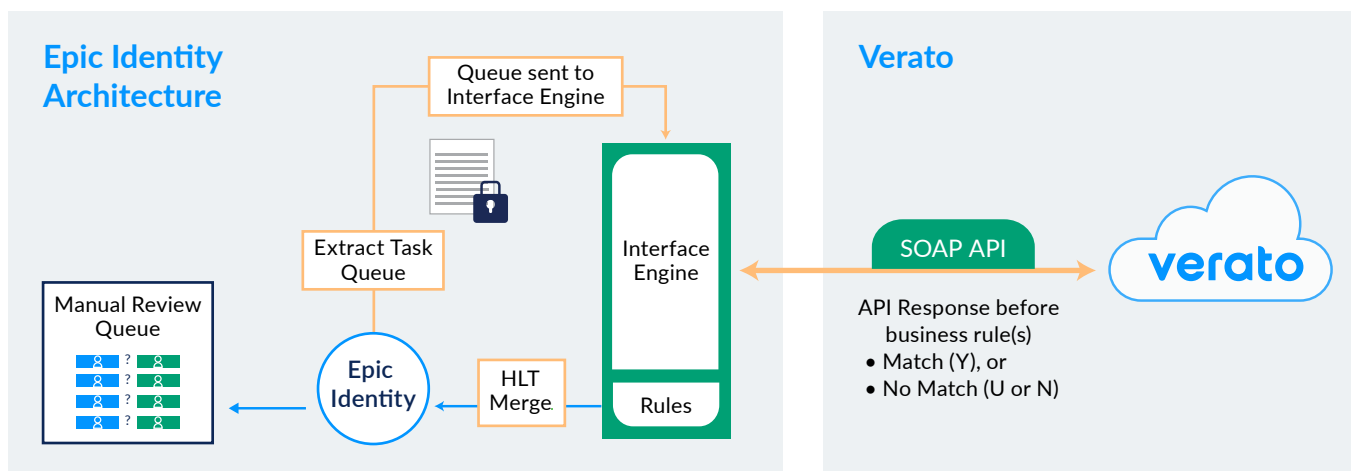
Patient A	Verato Reference	Patient B
NAME	NAME	NAME
Katherine Smith	Katherine Smith	—
—	Kathy Smith	—
—	Katherine Jones	Katherine Jones
DOB	DOB	DOB
1968-08-14	1968-08-14	—
SSN	SSN	SSN
—	456-78-9012	456-78-9012
PHONE	PHONE	PHONE
(214) 456-5645	(214) 456-5645	—
—	(815) 987-4567	(815) 987-4567
ADDRESS	ADDRESS	ADDRESS
—	200 S Madison St.	200 S Madison St.
—	200 Madison Street	—
123 Main St.	123 Main St.	—

Both match to the same reference record, therefore they match to each other.

Epic Clarity	Interface Engine	Interface Engine	Epic Identity
Create extract of tasks via Epic Clarity	Call Verato API for each task	Format results as HL7 merge message	Merge results in Epic Identity

Resolving tasks in Epic Identity

Resolving tasks from Verato does not require any customization or disruption of Epic Identity processes, because match recommendations from Verato are sent through the healthcare organization's existing business rules. For example, holds can be placed on merging patient records for a just-recently discharged patient to satisfy billing rules. Even more, Verato match decisions include the supporting data evidence for simple auditing.

Epic Identity Architecture

Queue sent to Interface Engine

Extract Task Queue

Manual Review Queue

Epic Identity

HLT Merge

Interface Engine

Rules

Verato

SOAP API

API Response before business rule(s)
- Match (Y), or
- No Match (U or N)

verato

The results

One healthcare organization had accumulated over 300,000 tasks in queue for manual resolution representing potential duplicates involving over 130,000 patient records. Rather than hire additional data stewards or contract with a manual resolution service, this organization used Verato Auto-Steward. The entire backlog was processed in less than two months from start to finish despite the fact that over 86,000 of these records had unusable SSN data (such as "000-00-0000"). Even without SSN data, Verato Auto-Steward was able to provide a definitive "match" or "no match" answer for 60% of all tasks — definitive answers that Epic Identity could not provide. With much of the backlog cleared, the team could focus on the truly obscure patient identity problems that require human judgment, and the healthcare organization is using Verato Auto-Steward on an ongoing basis to prevent future build-up of task backlogs in Epic.

Verato, the identity experts for healthcare, enables smarter growth, improved care quality and efficiency, and better population health by solving the problem that drives everything else — knowing who is who. Over 70 of the most respected brands in healthcare rely on Verato for a complete and trusted 360-degree view of the people they serve to accelerate the success of their digital health initiatives and fully understand consumers' preferences, risks, and needs from the beginning and throughout their care journey. Only the Verato HITRUST-certified, next generation cloud identity platform enables interoperability across the complex digital health ecosystem with unprecedented accuracy, ease, and time-to-value. With an enterprise-wide single source of truth for identity, Verato ensures that you get identity right from the start.

For more information, visit **verato.com**.

verato