



LESS DISRUPTION. MORE INSIGHTS.

HAMR is a big data analytics engine that builds upon expertise in data flow technologies. HAMR software is less of a disruption and more of a source of efficiency for enterprises with big data problems. HAMR enables enterprises to do more with less. HAMR can be used by Data Scientists as well as IT staff.

HAMR enables data to be transformed before being loaded into a data warehouse (DW). Many EHR vendors use DWs to store and distribute patient data in a secure IT environment.

Many hospitals and health systems now have DWs that emphasize information sharing with healthcare insurance providers. This accelerates reimbursements.

Many healthcare providers are not able to make it easy for doctors to access the data they need.

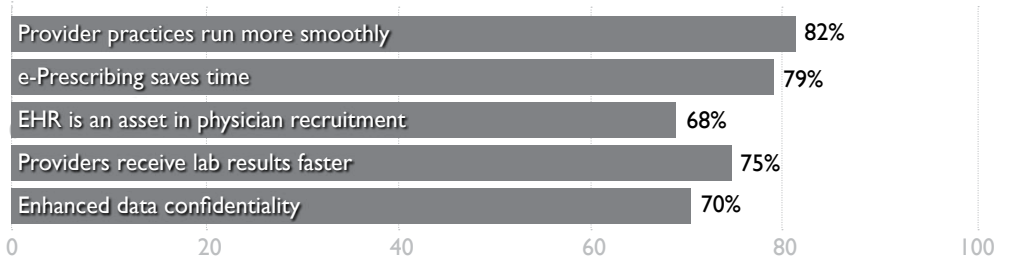
Queries run through multiple system often fail because data structures do not match each other.

“There are such large differences in these systems and data definitions, it only takes a single data element – which one system uses as unstructured and another uses as structured – that makes this process very difficult.”

– Paul Egerman
Massachusetts eHealth Collaborative
policy committee member



PROBLEM The standard of care (Meaningful Use) is intended to leverage the information that can be obtained from the wealth of available medical data. Meaningful Use (MU) directly enables evidence-based medicine, therefore the U.S. Government created incentives to phase-out the paper-based model. Adoption of electronic health records (EHR) has increased 8-10% in the last year.¹ A survey of doctors with MU-ready EHRs had five key findings²:



“Data Capture and Sharing” is EHR Stage 1; it is proving to be extremely challenging. Physicians must learn to key-in data and many find it difficult to access patients’ data in other systems.

The complexities of data migration is a barrier preventing providers from changing vendors. Switching vendors interferes with continuity of patient care; not changing can prevent full EHR utilization. ONC’s 2014 Edition S&CC places an emphasis on data portability and interoperability. Portability outmodes hand re-entry of data and interoperability improves the exchange of lab test results between ambulatory providers and hospitals.

HAMR is a major breakthrough, providing computational power and flexibility needed to transform data – making it more portable.



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Extract-Transform-Load (ETL) is essential to EMR informatics. ETL tools use a repository built on a relational database to uniformly manage, tag, focus on script programs, mappings, target schemas, and data resources.

5 FIVE STEPS FOR THE NEW HAMR DATA PORTABILITY REVOLUTION

- External / Foreign Data Source
- E** Data Resource Reader] **HAMR**
- T** Flowlets (cleansing, transforms, routing, analytics)
- L** Data Resource Writer]
- File

4 HAMR SAVES FOUR STEPS

Flowlets process data much faster by enabling health informatics professionals to iterate & adjust algorithms – taking full advantage of machine learning techniques in real-time.

Clinicians can access data faster – in time to save lives.

9 NINE STEPS FOR THE CURRENT DATA WAREHOUSE ETL PARADIGM

- External / Foreign Data Source
- E** Extract] **On-Board**
- T** Transform (cleansing)
- L** Load]
- Staging Database] **DW**
- SQL Execution/ Data Normalization]
- Data Warehouse] **EHR**
- EHR Execution]
- File]

The traditional ETL process takes nine steps, which is a source of delays for clinicians.

HAMR provides a simpler five step process to transform data, which is also known as data cleansing. Errors can be removed and rules can be applied, defined by the taxonomy or broader ontology of another EHR system. This enables data portability.

Researchers calculated the average cost for an EHR implementation for a five-physician practice was an estimated \$162,000, with \$85,500 in maintenance expenses during the first year. The average physician takes 134 hours to prepare and use the record system in clinical encounters.³ They are commonly disappointed and frustrated.

The government mandate of data portability and interoperability does not fully consider technical challenges – especially in transforming large volumes of data in a timely manner for clinicians.

HAMR offers a compelling value proposition. If a healthcare system currently processes 260 GB per day, a healthcare system can process 2,080 GB per day with HAMR, saving 1,820 hours of processing in one year. If five informatics consultants are working on an ongoing project, that can save \$2,730,000/year (based on \$300/hour).

Data portability enables full utilization of EHRs. In turn, evidence-based medicine results in 15% fewer deaths.⁴

3. <http://content.healthaffairs.org/content/30/3/481.full.pdf>

4. David W. Bates, MD, MSc, "The Effects of Health Information Technology on Inpatient Care," Archives of Internal Medicine, 2009; 169,(2):105-107