

A wide-angle, aerial photograph of the UC Davis campus. In the foreground, a large, modern stadium with a curved roof is visible. Behind it, a dense cluster of university buildings, including dormitories and academic halls, stretches across the landscape. The city skyline of Sacramento is visible in the far distance under a clear blue sky.

HIMSS IN ACTION

**UC  
DAVIS**



HIMSS®

AMAM STAGE 6

**Location**  
Davis, California

**Transformation Type**  
Predictive Analytics

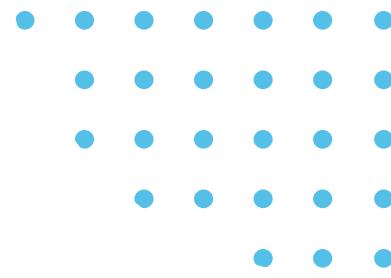
**Maturity Model**  
Adoption Model for Analytics  
Maturity (AMAM)



# FROM STAGE O TO AI HEROES.

HIMSS helped UC Davis spot gaps in their data governance and pioneer a framework for ethical AI.

*Let's explore the full story.*



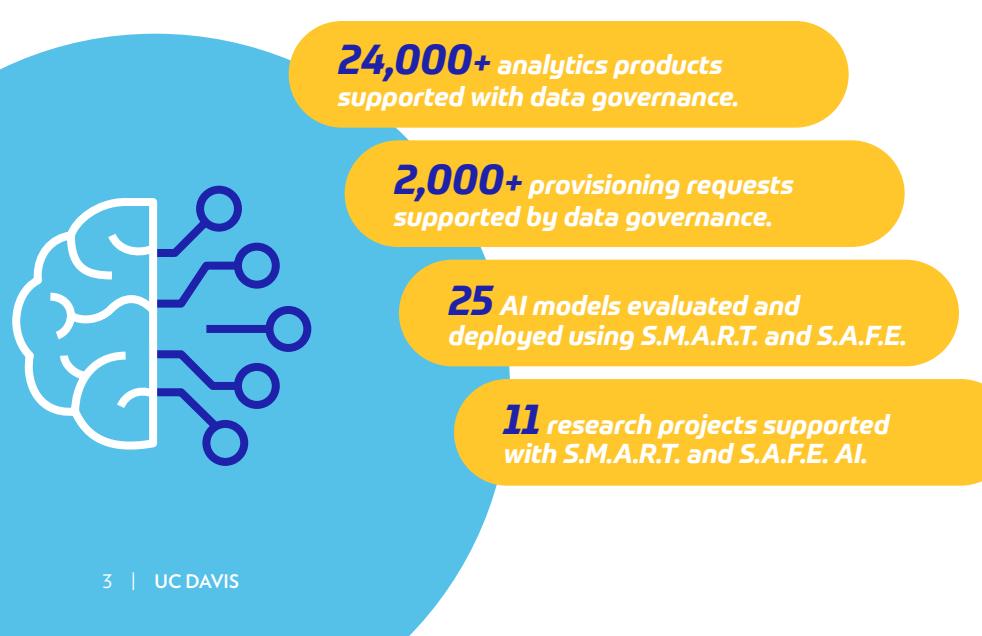
## 🔍 STATSHOT + OVERVIEW

# **HIMSS helped UC Davis treat data right and evaluate which AI models actually get used.**

Deploying AI ethically isn't easy, especially when you've only just figured out data governance. But that's what UC Davis did in just a few short years using our Adoption Model for Analytics Maturity (AMAM). Their system is massive, with 1,000,000+ patients per year and the region's only Level I Trauma Center. Despite the scale, though, they had limited analytics capabilities—and no AI. Different departments coded the same pieces of data differently, and analyzed system-wide stats in isolation.

There are two stories here, and we'll tell them both. To start: not having data governance is risky, so UC Davis used AMAM to quickly get their ducks in a row (and classify them correctly). Starting at AMAM Stage 0 was both a wakeup call and a rallying cry, and their speedy ascent to Stage 6 shows how fast change can happen with buy-in and collaboration. After creating system-wide data standards and informatics workflows, they had their analytics foundation ready to go.

With the wins racking up, UC Davis decided to really push it. As they started adopting AI, their team realized they needed standards to guide which models make the cut. Led by several cross-functional committees, they created S.M.A.R.T. and S.A.F.E., a clinical evaluation framework for health AI governance. Ethics and organizational fit are the key axes of this framework, and it has already cleared 25 AI models for use in care.



***UC Davis built their analytics foundation with AMAM, then created ethical frameworks for health AI.***

 **THE SETUP**

## ***UC Davis knew they needed an analytics strategy, and guardrails for rolling out AI.***

The California-based provider is doing it all. UC Davis has nearly 500,000 active patients, spread across a 646-bed academic medical center and 90 ambulatory clinics. But when clinical, operations, and research teams said “we need data,” their IT team was coming up short. That wasn’t on IT, of course—UC Davis started out at AMAM Stage 0, and needed to build their analytics strategy from the ground up.

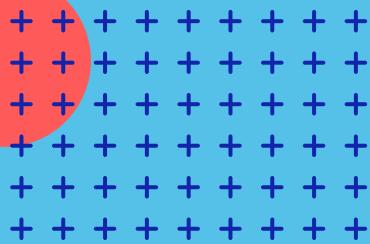
The core issue was governance: different departments’ data and analytics teams were stuck in their own little silos. Each group defined the same variables differently, duplicated work that’d already been done, and failed to share data assets across the organization. Even key metrics like ‘length-of-stay’ were a particular problem, with the lack of consistency affecting everything from patient flow, to resource management, and overall efficiency. Sounds chaotic, right?

After building a data governance program to define best practices, standardize workflows, and increase literacy, they were ready to get moving with AI. There’s real substance behind the hype, but the ethics around machine learning are still *totally* brand-new. At AMAM Stage 4, UC Davis didn’t

have systems to classify which machine learning models were safe, unbiased and effective. They’d rolled out a few models by 2020, but they needed a framework to assess the risks that come with scale.

***AMAM brought UC Davis up to speed and helped them develop a new way to evaluate AI models.***





## SOLUTIONS

# ***Unified data created the foundation for S.M.A.R.T. and S.A.F.E. AI rollouts.***

To solve their governance problem, UC Davis developed an enterprise-level data strategy. Business and technical stakeholders decided whether measures like 'length-of-stay' should be defined using medians or geometric means, which patients should be included, and which metrics were appropriate for different business domains or use cases. They created processes for fixing existing enterprise metrics, building new assets, and identifying the highest-value, lowest-effort opportunities.

Things got streamlined fast. UC Davis' working committees created data management toolkits, common data sources to pull from, and standards to guide the work. The governance committees created simple guides showing how data should be provisioned and access should be granted. As teams started to access the same data, UC Davis was able to break down silos between analytics teams in different departments. Maturity came fast, and soon they were at Stage 4 on AMAM. Smart, right?

What came next was even smarter—literally. Looking to roll out AI safely, they created the S.M.A.R.T and S.A.F.E. framework. The S.M.A.R.T. component is a riff on familiar industry standards, but the S.A.F.E. component is where it gets really

innovative. Together, the four S.A.F.E. criteria allow stakeholders to ensure that any machine learning model that might impact patients or providers is safe, accurate, fair, and evidence-based. Everyone wants to know AI tools in care aren't quackery, biased, or biased quackery, and UC Davis wrote the whole playbook.

***AMAM helped them jump-start their analytics journey and develop S.M.A.R.T. and S.A.F.E from the ground up.***

**S**PECIFIC

**M**EASURABLE

**A**LIGNED

**R**EALISTIC

**T**RANFORMATIVE

**S**AFETY AND RISK

**A**CCURACY

**F**ARINESS AND BIAS

**E**VIDENCE

 CHANGE MANAGEMENT

## ***UC Davis used AMAM as a wakeup call and roadmap for their whole system.***

All the C-suite buy-in they got flowed straight from their HIMSS validation. “We might’ve been able to score at Stage 2 if we were really generous to ourselves,” the director for their Data Center of Excellence explains. “But we didn’t want to miss something critical in doing so. Scoring a 0 in our AMAM assessment grabbed leadership attention and set the stage for fast change management.”

After their AMAM assessment, UC Davis ran data and analytics surveys to check the pulse of every analytics team across the organization. Backed by a data governance mandate from the UC Office of the President, UC Davis started to build what is now known as the Health Data Oversight Committee (HDOC).

Put simply, the HDOC exists to define best practices. It’s made up of multiple subcommittees, and creates standards around data access and management, HIPAA-compliant computing, and analytics oversight. Cross-functionality is the whole idea. The HDOC involves leadership from 20+ areas across UC Davis and includes stakeholders from research, education, clinical practice, and operations.



 **CHANGE MANAGEMENT**

UC Davis used our AMAM model to check their progress again in 2019, and had moved up to Stage 4 after only a year. That second validation only earned more buy-in, and like we talked about, this is when they started to get serious about ethical AI.

They tasked the HDOC's Analytics Oversight Committee (AOC) with building an evaluation framework for AI, which became the S.M.A.R.T. and S.A.F.E. model. The AOC is led by the Chief Nursing Informatics Officer and the Chief Research Informatics Officer, so it had backing from the heavyweights.

S.M.A.R.T. and S.A.F.E also incorporated feedback from folks throughout the organization, which made adoption simple. AOC members who helped develop the framework included clinicians, data scientists, biostatisticians, informaticists, compliance specialists, and experts in diversity, equity, and inclusion. That's how UC Davis struck the right balance between ethics and innovation, and made everyone believers.

***With AMAM showing the analytics gaps, UC Davis had the buy-in they needed to drive serious change.***

“



***The fact that we had such broad buy-in across the organization was a testament to the clarity AMAM gave us.”***

KENT A. ANDERSON |  
Director, Data Center of Excellence | PUC Davis Health

 RESULTS

## ***Tackling data governance first cleared the way for safe, effective AI adoption.***

Now, UC Davis has their analytics firing on all cylinders. Their best practices and standard operating procedures make it possible to handle over 1,000 data provisioning requests per year, and their governance processes now support over 2,400 analytics products. Plus, the HDOC has helped resolve 40+ prioritization escalations for discrete data and analytics requests from the data provisioning team. (Love all that.)

The wins stretched outside operations, too. When their clinical ambassadors want to implement an AI model, UC Davis is ready with the S.M.A.R.T. and S.A.F.E framework. The AOC approved over 25 models in just over two years, and AI is quickly moving from vetting to clinical implementation. S.M.A.R.T. and S.A.F.E. even weeded out 5 potential models—in just 2022-2023 alone. Of those models, 1 was deemed out-of-scope, 3 failed the S.M.A.R.T. criteria, and 1 failed the S.A.F.E. criteria.

 **RESULTS**

In other words: evaluation is streamlining safe and responsible AI deployment on the wards, and the checks and balances are working. UC Davis even went back and double-checked old models they'd rolled out already, and caught one built on racially biased data. "That was actually a vendor-sourced product we'd implemented before we had S.M.A.R.T. and S.A.F.E.", their Director of Data and Analytics Strategy explains in conversation. "We turned that model off *immediately*."

The AOC-approved models UC Davis rolled out are already transforming care and research. 11 academic studies (and counting!) have used safe AI to guide research, 7 of which have been approved by an Institutional Review Board (IRB). UC Davis has used AI to analyze 20,307 head CT scans for signs of intracranial hemorrhages and 5,125 chest CT scans for pulmonary embolisms. They've even used AI to spot 1,350 at-risk patients, and placed 1,174 on preventative treatments. AMAM Stage 7 will come soon, and we can't wait to help them push more innovation boundaries.

***At UC Davis, the analytics strategy is crystal clear and they're ready to create the future of safe AI.***



***S.M.A.R.T. and S.A.F.E. is a very robust framework and we're really proud of the results.***

JASON YEATES ADAMS |  
Director of Data and Analytics Strategy | UC Davis



## ABOUT EMRAM / ABOUT HIMSS

# ***AMAM is our dedicated analytics model.***

This maturity model drives predictive analytics adoption, supports data governance and infrastructure, and enables the delivery of person-centered care. With our framework backing you up, you'll make full use of your data and enhance quality of care across your whole system.

***We're ready when you are.***

## **AMAM** *Capabilities*

-  **Shaping data governance**
-  **Scaling up predictive analytics**
-  **Delivering more care for less cost**
-  **Spotting gaps in analytics**
-  **Population-level interventions**
-  **Digital health transformation**

 EMRAM RESULTS

## *You're in good company, friends.*

*Here's how our AMAM model helped other care centers:*



*\$6.2 million cost savings on medication duplication for China Medical University Hospital.*



*87% decrease in emissions for the Seattle Children's operating room.*



*50% increase in direct-to-home discharges for Endeavor Health.*

## **Make your digital health transformation happen.**

**Reach out to speak to our team anytime at [dht@himss.org](mailto:dht@himss.org). (We're here!)**