FROM PERCEPTION TO MEASURED REALITY

Leverage Analytics to Improve Clinical & Economic Outcomes

ECOLAB®

Turning Data into Actionable Information

Every industry – including healthcare – is undergoing the same transformation. Oceans of data that previously offered little strategic or measurable value are now being converted into actionable information. The rise of cloud computing, artificial intelligence (AI), machine learning and other digital technologies give us the tools we need to transform raw data into predictive and prescriptive analytics.

In the energy and utility market, analytics will help conserve energy and bring stability to power grids. In the automotive space, it will prevent collisions and prevent vehicle breakdowns. For manufacturers, analytics will drive massive factory efficiency gains and safety improvements.

Analytics also offer great promise for healthcare. From population health strategies to care delivery innovations to infection prevention improvements, the predictive and prescriptive power of analytics is beginning to change our industry. While many success stories dot the map, the reality is that we are just beginning to tap the potential of data analytics.

While cloud computing, AI and machine learning are decades-old technologies, we are just now seeing their impact because collecting data, turning it into actionable information and then applying the insights presents significant challenges – especially for organizations where a majority of the staff is focused on saving lives.

One of the keys to accelerating adoption of analytics in healthcare is simplicity. While behind-the-scenes data science is highly complex, clinicians and administrators need tools that automate the data collection process and provide easy access to the resulting information. Healthcare technology providers like Ecolab are meeting this need through the creation of automated auditing and compliance tools, as well as the deployment of analytics dashboards that are designed with pressured and fast-moving clinicians in mind.

39%
of leaders said one of their top three priorities for 2017-2018 is to "prep for or manage big data"

44%
of leaders said one of their top three priorities for 2017-2018 is to "upskill our organization's analytic capabilities"

Source: TGaS Advisors Landscape Study: The Current & Future State of insights & Analytics

ECOLAB

The Low-Hanging Fruit of Infection Prevention

Most hospitals – or utilities, manufacturers or automotive companies – that have experienced success in deploying analytics have taken a phased approach to their initiatives. They start with a use case that offers easy access to relevant data and the opportunity to make an immediate and measurable impact on critical outcomes. For healthcare, a prime use case is infection prevention.

Every hospital already collects its own infection prevention data. A number organizations – such as the Centers for Disease Control (CDC), the Centers for Medicare and Medicaid Services (CMS) and the American Hospital Association (AHA) – collect and report industry-wide infection prevention data. And there are multiple sources of data relating to the impact of healthcare acquired infections (HAIs), ranging from patient outcomes to hospital costs to reimbursement rates.

All of this infection prevention data has been available for many years and hospitals have used it to make improvements to their infection prevention efforts. But those efforts are largely focused on historical events and they require teams to interpret the data, make policy changes and then implement them – all in an environment that is limited by the reality of razor-thin margins.

In 2017, Ecolab began working with a small number of hospitals and health systems to deploy the power of predictive and prescriptive analytics. Pilot programs use cloud computing to integrate multiple data sources – from within the hospital or healthcare system and from the healthcare industry as a whole – to provide both historical and real-time infection prevention information.

ECOLAB ANALYTICS PARTNERSHIP WITH U.S. HEALTHCARE SYSTEM

93 Hospitals

15K+ Patient Rooms

131K Clinicians & Staff

22 States

2M Patients

19M+ High-Touch Objects

1.13M Terminal Cleanings

ECOLAB®

AI and machine learning technologies are used to convert data into predictive and prescriptive insights that are presented to clinical and environmental services (EVS) staff via highly intuitive dashboards – which can be accessed anywhere they're needed on both desktop computers or mobile devices. Clinicians and EVS teams are not required to perform any new data collection or analysis tasks. Nor are they required to develop deeper expertise in pathogens or cleaning technologies. They simply view the information they need on dashboards and decide which actions to take. Not only is this approach non-intrusive, it ultimately saves time for clinicians and EVS teams and make their jobs easier, as it can help shorten a patient's length of stay and reduce the chances of readmission.

ECOLAB®

What's Stopping You — And How to Overcome Inertia

From an infection prevention perspective, there is critical performance and process data to be gathered in your the emergency room (ER), patient rooms, central sterile and surgical suites. Other important process and performance data resides in admissions, training programs, ED wait time trends, patient satisfaction surveys and discharge processes. Ecolab has developed data collection and evaluation models that help hospitals and health systems identify which data is valuable to optimize operational efficiency. After data sources are identified, we can deploy cloud-based analytics tools that combine your data with relevant external data. Predictive and prescriptive tools — based on AI and machine –learning technologies — then turn that data into actionable information, which is available to authorized users on highly intuitive dashboards. These digital tools help you overcome the typical analytics roadblocks facing most hospitals, which include:

1. **INFRASTRUCTURE FLEXIBILITY:**
   It's clear to anyone investigating analytics that the field is evolving. This makes it difficult for individuals or teams to make technology investment decisions. A best practice here is to look for supplier partners who offer analytics tools as part of their solution. Also, look for flexible, extensible analytics platforms that can adapt as analytics and your use of them change.

2. **SENIOR LEADERSHIP SUPPORT.**
   Because of the technology behind analytics and data collection, projects often start in the IT or clinical engineering departments. Work your program from the top-down. Get senior leadership buy-in to strategic objectives — such safeguarding the hospital brand, reducing readmissions costs and decreasing patient days — then tackle the technical aspects.

3. **CHOOSING A USE CASE.**
   Want to make progress with analytics? Find a "quick win." Infection prevention is usually a good place to start, because there is plenty of accessible and relevant data in the hospital — and the results are easy to measure and monetize and can impact key metrics like quality of care, start ratings, and patient days.

4. **CULTURE CHANGE.**
   The first best practice is to simplify compliance and participation for your staff. Any new data collection activities are likely to meet with resistance. Use automated tools for data collection. Apply change management practices to the use of analytics. Help your teams acclimate to leveraging insights.

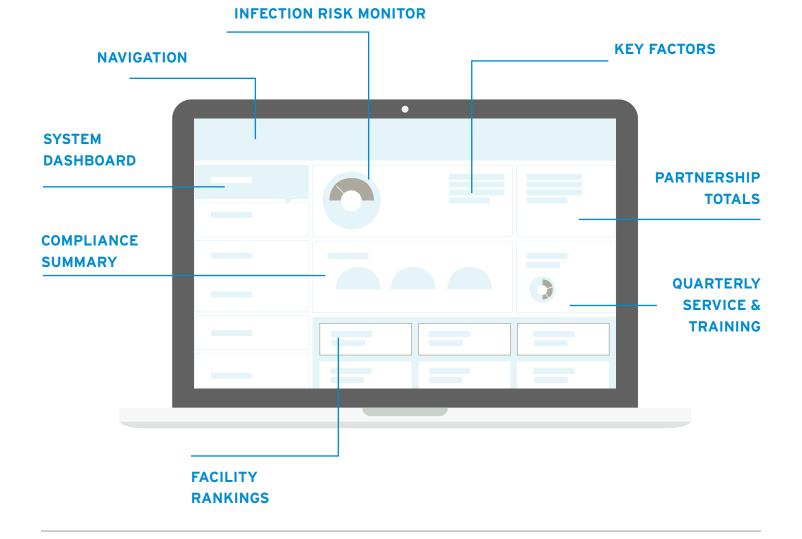| WITHIN THE HOSPITAL OR SYSTEM	INDUSTRY DATA SOURCES
• Admissions • Room Turnover Time • Surgical Suite Turnover Time • Environmental Cleanliness • Hand Hygiene Compliance • Cleaning Product Utilization • Equipment Processing Compliance • Infection Rates — C. diff, MRSA, SSIs • Patient Satisfaction Ratings • Training Completion • Vendor Service Metrics • ED Wait Times	• Population Health Statistics • Patient Risk by Geography • Infection Rates — C. diff, MRSA, SSIs • Patient Satisfaction • HCAHPS Scores • Readmission Rates • Penalties • Reimbursement Rates

ECOLAB

Making Predictive & Prescriptive Analytics Accessible

The design of dashboards is a critical factor in the success of an analytics initiative. Usability and ease of navigation are obvious factors contributing to success. But more important is anticipation of the user experience, especially in the context of what each user's objectives will be. A user experience that requires extra time or adds friction for a clinician or EVS team member is likely to derail your efforts. Entire analytics projects have been abandoned, not because of lack of business value, but because of poor user experience.

This user experience is especially important in healthcare, because users simply are not willing to lose focus on what matters most to them – providing care, delivering quality outcomes and saving lives. Dashboards must quickly deliver analysis, alters, predictions and prescriptive solutions in order for them to be valuable to users.

Ecolab has worked closely with a small group of hospitals and healthcare systems to determine optimal user experiences for our analytics dashboards. And the same AI and machine-learning tools that are used to provide increasingly intelligent analytics are also used to continuously improve the user experience for our dashboards.

INFECTION RISK MONITOR

NAVIGATION

KEY FACTORS

SYSTEM DASHBOARD

PARTNERSHIP TOTALS

COMPLIANCE SUMMARY

QUARTERLY SERVICE & TRAINING

FACILITY RANKINGS

ECOLAB

Building an Infection Prevention Analytics Model

Analytics are incredibly valuable and, most likely essential, to the long-term success of a hospital or health system. But evidence from every industry shows that how you approach your analytics initiative is likely to determine its success or failure. It's almost never a question of business value. A recent *Harvard Business Review* article put it this way: "Companies can get stuck trying to analyze all that's possible and all that they could do through analytics, when they should be taking that next step of recognizing what's important and what they should be doing — for their customers, stakeholders, and employees. Discovering real business opportunities and achieving desired outcomes can be elusive."

A proven path in Ecolab deployments has centered on cloud-based flexibility, robust data collection and analytics capabilities and a zero-friction and zero-frustration experience for users. In addition to infrastructure, a successful deployment requires a bit of a culture change. This does not mean that clinicians and EVS teams are saddled with additional work. It simply means that hospital staff needs to start viewing processes and outcomes from an analytics perspective. This requires visible leadership buy-in to analytics and effective training for any staff who access dashboards and take corrective action or make decisions based on the insights. A third requirement — which typically delights most hospital leaders — is a willingness to break down silos and share information and insights freely across departments. Most hospital leaders and department heads are aware of the benefits of eliminating departmental silos and ware taking some steps to get there. But the deployment of analytics-based decision making is one of the fastest ways to make that happen.

BUILD CLOUD ENVIRONMENT	>	DESIGN/DEVELOP DASHBOARDS	>	DEPLOY PREDICTIVE/ PRESCRIPTIVE CAPABILITIES
• Integrate departments/ facilities • Integrate external data sources • Determine which data to measure • Security/access control/ authorization		• Interface design • Standard reporting • Custom reporting		• Real-time alerts • Predictive alerts • Corrective actions

ECOLAB®

About Ecolab

A Trusted Source for Ideas & Execution

Ecolab Healthcare works collaboratively with health systems, hospitals and clinics to prevent HAIs and improve operational efficiency to create clean, healthy environments for patients and staff. We offer best-in-class technology – including highly advanced chemistry – to break the chain of infection. More importantly, we surround our customers with the information, training, service and support they need to reduce the potential for infection-related incidents that damage reputations and impact revenue. Emerging offerings include solutions for collecting and analyzing critical data that empowers hospitals to make better real-time decisions and create more effective long-term plans. Our digital solutions provide prescriptive analytics tools that will elevate infection prevention to a new level of effectiveness while optimizing operations.

For more information,
visit **www.ecolab.com/healthcareinsightscenter**.

ECOLAB®