



# Enhanced Analytics

Juan Encinas – Manager, Applied Analytics

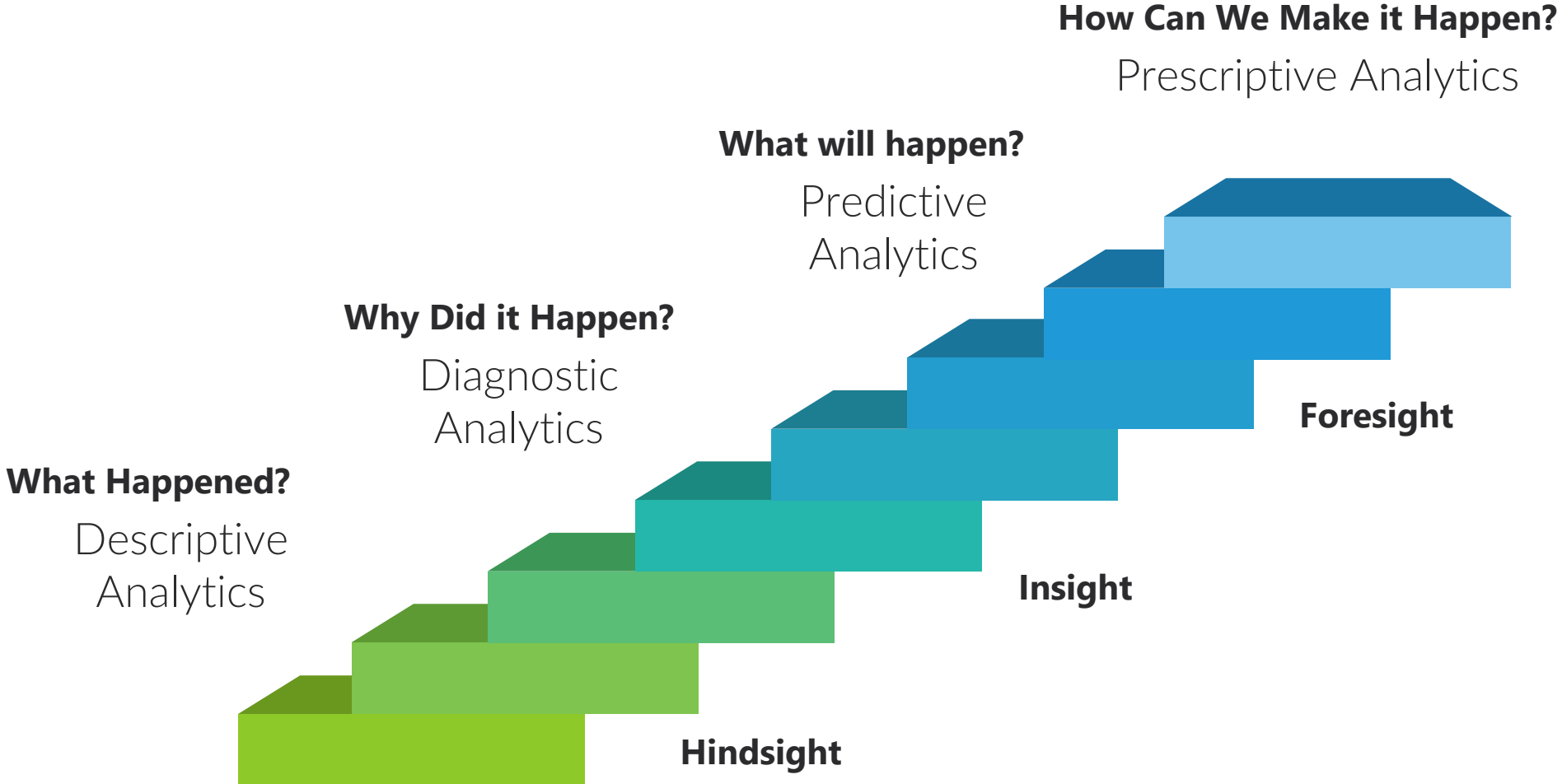
October 18, 2023



# Enhanced Analytics

- We recognize the critical role of analytics in healthcare. Enhanced analytics makes tools available to keep up with the demand for information and make good business decisions.
- How are we driving the process to maximize value in data?
  - The **Collaborative Enterprise Data and Analytics Council** → **Data Asset Working Group** assign priorities for data asset development, expansion and acquisition
  - The committees are **multidisciplinary teams** consisting of our Chief Data Officer, the Analytics team, IM/IT, Finance, Research Innovation and Discovery, subject matter experts and representatives of partner agencies
- Where do we need to make the most impact?
  - Patient flow related data
  - Data that helps us understand access to services and programs
  - Workforce analytics is increasingly relevant
  - Growing need for higher data ingestion frequency and quasi real-time applications
  - One Person One Record will replace or connect more than 80 systems.

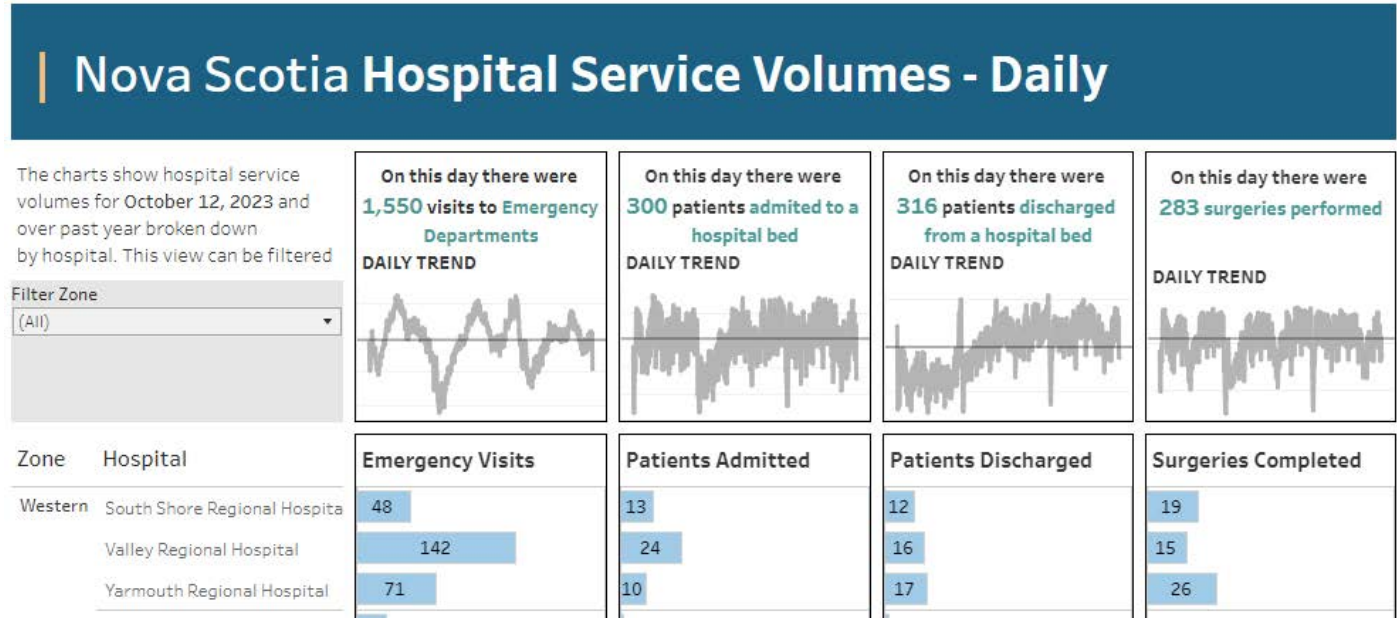
# The Analytics Journey



# What Happened?

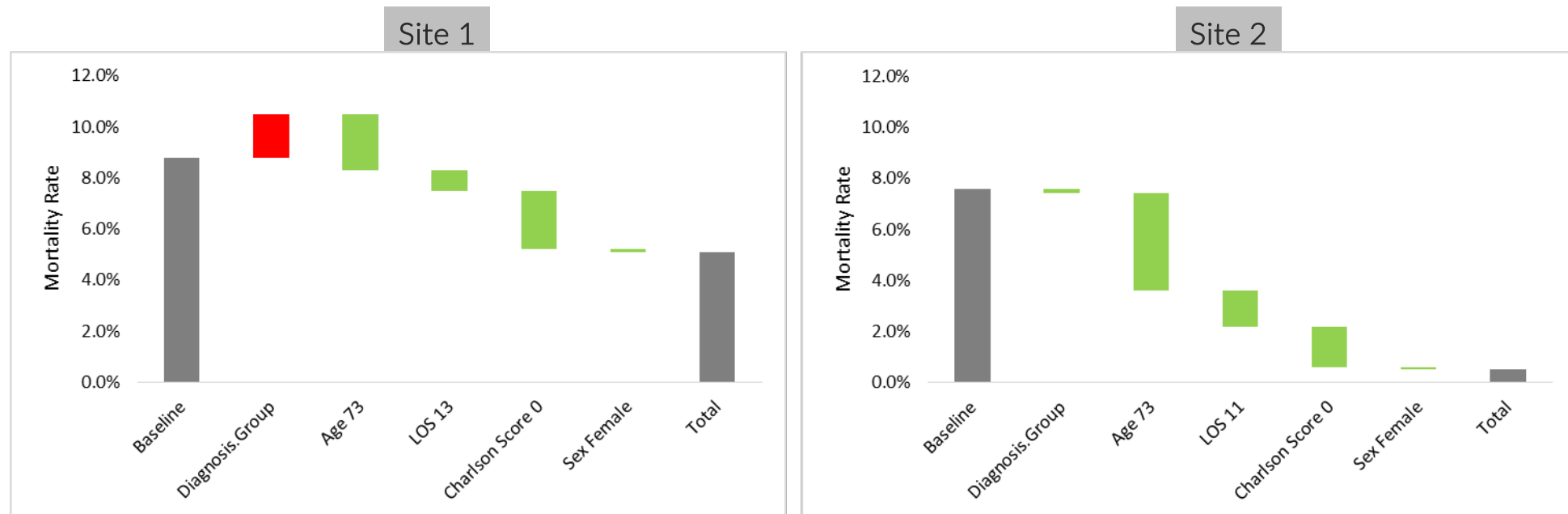
- We offer two levels of reporting:
  - Action for Health is Nova Scotia's plan to provide better care for Nova Scotians. The **public reporting** of Action for Health was created to make more data available to the general public.
  - Our **internal Health Analytics Visualization Platform** provides detailed insights about the performance of all NSH services.

Many different sources of data – including from partner institutions – go into the creation of these dashboards.



# Why Did It Happen?

- We use machine-learning techniques to identify the key drivers for outcomes.
- Explanatory models allow us understand the differences between the outcomes of different sites, for instance what are the contributions of each major input to mortality rates.



# What Will Happen Next?

- Forecasting is essential for healthcare.
- As an example, most patients state that their satisfaction with Emergency Departments would be improved if wait times were made public.
- With this idea in mind, we envisioned the development of a tool that would predict the expected ED wait time, and a webpage where this information would be posted.
- On June 6, 2023, we launched the Emergency Department Wait Times webpage [www.nshealth.ca/edwaittimes](http://www.nshealth.ca/edwaittimes)
- The webpage displays the expected Wait Time for Physician Initial Assessment for each of the next 12 hours, by ED site.

**Note:** These predicted wait times represent the current average time (in hours) between being assessed at triage and seeing a doctor or nurse. The predicted waiting time range to see a doctor or nurse in an emergency department is approximate and is for informational purposes only. Predicted wait times are updated every hour (see the disclaimer). Patients will be seen in the emergency department based on their medical condition and the severity of their situation. The most seriously ill patients are typically seen without delay. Across all emergency departments reported, our tests show that 70 per cent of patients waiting see a doctor or nurse before the maximum time shown.

**If you need help immediately, call 911 or go to your nearest emergency department no matter the estimated wait time.**

Search  Predicting ED Wait Times for 9:00 (9am) Forecast Help Call 911

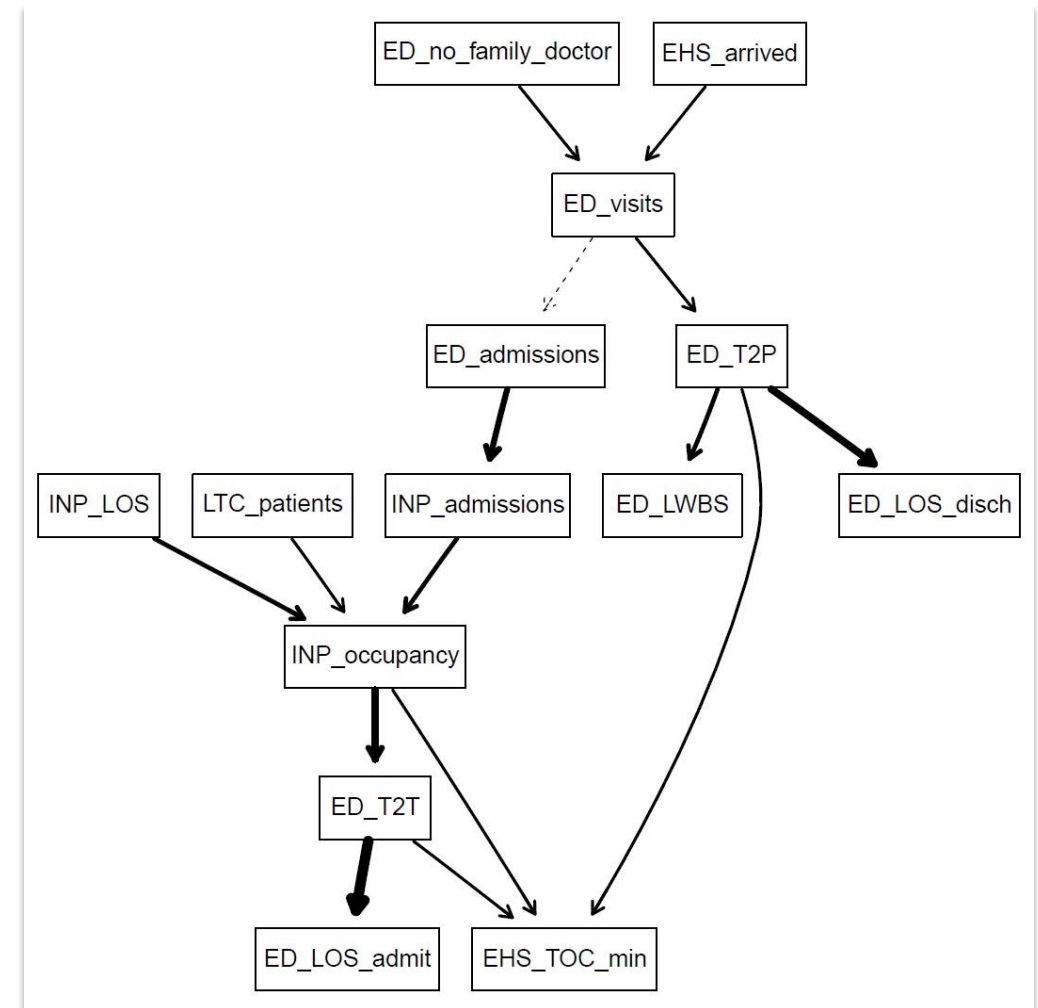
Community	Facility	Wait Time (Hours:Minutes)	Distance (KM) ↑	
Dartmouth	Dartmouth General Hospital	3:00 - 5:00	6.3	▼
Halifax	QEII - Halifax Infirmary Site	2:30 - 4:30	15.9	▼
Truro	Colchester East Hants Health Centre	3:00 - 5:45	91.2	▼
Kentville	Valley Regional Hospital	0:45 - 2:00	105.7	▼
Bridgewater	South Shore Regional Hospital	3:15 - 6:00	112.2	▼
New Glasgow	Aberdeen Hospital	2:45 - 4:45	121	▼
Upper Nappan	Cumberland Regional Health Care Centre	0:15 - 1:45	137.1	▼
Antigonish	St. Martha's Regional Hospital	1:00 - 3:00	160	▼
Yarmouth	Yarmouth Regional Hospital	4:15 - 7:15	227.1	▼
Sydney	Cape Breton Regional Hospital	5:45 - 8:30	305.8	▼

Latest: 13/10/2023 08:37  
v1.3.0 1 - 10 of 10 < >

**Disclaimer**  
Due to changing demands in emergency departments, these wait times are not guaranteed and may not be the time you will need to wait once you arrive. The provision of emergency department wait times is not medical advice or a recommendation of one emergency department over another.  
Nova Scotia Health expressly disclaims all liability for the use of any information presented on the ED Wait Times application or from any person's decision to access any of the services referenced, and for any claims, actions, demands or suits arising from such use.

# How Can We Make it Happen?


- We are trying to find answers to the question how do we reach our operational targets?
- Consider the following example. High hospital bed occupancy contributes to the congestion of our emergency departments which, in turn, increases the offload times of our ambulances.
- Our aim is to identify direct and indirect links among factors, so that we can determine the point of equilibrium of the health system.
- Emergency departments, inpatient facilities, primary care, surgical services... are **not treated as separate domains**, but as elements of an interconnected network.






# Keys for Future Success

 **We need to be discoverable**  
We have now consultants that build the link between our corporate office and the zones

 **We need to use an accessible language**  
Avoid the use of technical terms such as “statistically significant” and replace by more generic language, e.g. “associated with”

 **We need to provide real actionable insights**  
Finding interesting results is not sufficient. How can the end user apply them?

 **We can expand our reach beyond clinical applications**  
Cost projections with Finance is an example of collaborative spaces

 **We have to continually challenge ourselves**  
We need to strive for continuous improvement, not just create a process and let it run for ever. Data sources, data quality and data recency are features we need to reevaluate periodically