# Dashboarding for real-time analysis of oesophagogastric outcomes data

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Surgical outcomes audit is often ad-hoc and driven by a perceived need.

A better, more useful model would utilise automated monitoring in real time, so up-to-date performance can be assessed regularly.

Here we present a dashboarding solution for monitoring outcomes.

## Methods

**CODA** is a bespoke databank for oesophagogastric cancer care at OUH.

It is implemented in MS SQL Server, with an HTML, C# and JavaScript front-end.

We developed a visualisation solution in Tableau using the following sources for key performance indicators (KPIs):

1. '*AUGIS Provision of Services*', 2016;
2. Common complications: our prevailing 2-year rate;
3. Rare complications (<1/yr): our prevailing 5-year rate.

All CODA data are manually curated by a dedicated and embedded data scientist, supported by the clinical team.

Outcomes can be filtered by surgeon, operative approach, or time period.

Inclusion of missing data facilitates data quality control (e.g. 90 day mortality)

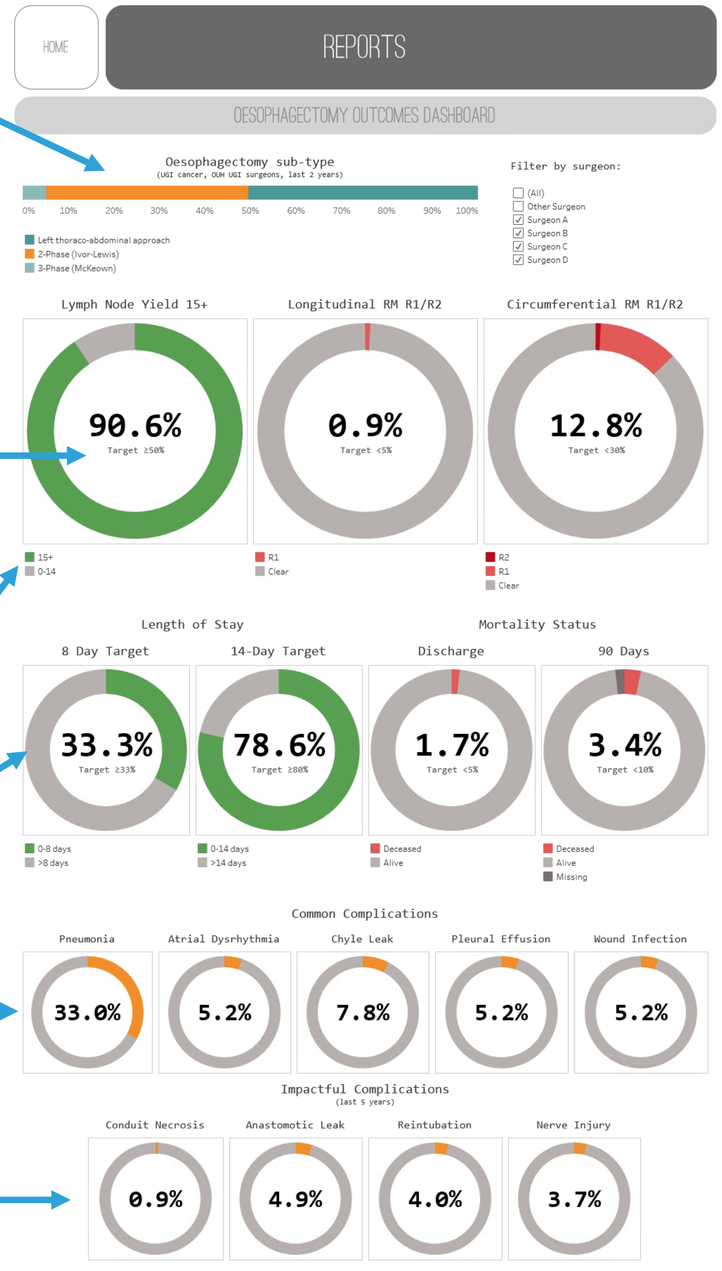
Outcomes are presented against nationally recognised standards.

The first cluster of doughnut charts describes surgical/ pathology quality.

The second cluster describes admission length, and short-term mortality.

This row describes common ECCG complications (>2/yr, measured over 2 years).

These are rare yet impactful complications (<1/yr, measured over 5 years).




## Summary

The CODA dashboard provides real-time appraisal of surgical practice and data capture.

Thus, dips in performance can be detected early, and addressed.

The platform can be used for personal, departmental or inter-institutional service evaluation, or as a tool to aid consent in clinic.

Future directions include extending the dashboard to survival, to help decision-making using local data.

The metrics are aggregated over the last 2 years (except rare complications, 5 years) and refreshed hourly.

This provides a wider context to every complicated case in the M&M, hopefully supporting the early detection and correction of process-level medical error.

The KPIs will be extended to include cancer survival from both non-operative and operative approaches.

This will help patients & clinicians make treatment decisions in clinic, providing the best possible information for consent.