Three Dimensions of Hospital Performance

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About KMS

KMS is a complete Hospital Information System (HIS) which can be installed in various upgradable configurations Hospital Finance, PAS (Patient Information System), Billing, Polyclinic, or as a complete HIS with an Electronic Medical Record (EMR). Our vision is a system which can be installed quickly at surprisingly low costs.

Different hospitals have different perspectives on 'performance' depending on factors such as location (urban or rural/remote), organisation type (for-profit or not-for-profit), funding (government or private) and service mix (general or speciality hospital).

While the specific measures of performance may vary, all hospitals have three key dimensions of performance.

Quality All hospitals must provide effective health care treatment, safely and in a way that meets patient expectations. It goes without saying that all treatment should be delivered as safely as possible. Effectiveness used to be synonymous with "following evidence-based best practice" and to a large extent that remains the case.

However, there is a growing body of evidence showing that effectiveness is improved if patients' individual circumstances are taken into account. One method of achieving this is using Electronic Patient Record Software or Electronic Medical Records (EMR)

Additionally, there is a growing trend of patients wanting a greater say in their own care. Rightly or wrongly, "bedside manner" is now an intrinsic part of "quality".

Access All hospitals need to ensure optimal use of available resources - facilities, equipment, and staff - by treating the highest number of people those resources allow (while maintaining quality). Timeliness and equity of access is a political issue for public hospitals, but even private hospitals need to manage timeliness of access (long waitlists will mean patients will go elsewhere) and equity of access (in some jurisdictions private hospitals cannot legally refuse treatment in emergency situations even if the patient cannot pay).

Price All hospitals are expected to provide care in the most cost-effective manner possible. Internal costs are reflected in the prices charged to payers (higher internal costs mean higher prices). Regardless of who pays for the healthcare - patients, insurers, or the government - everyone expects to pay the lowest possible price.

Three Dimensions of Hospital Performance

Relationship Between the Three Dimensions

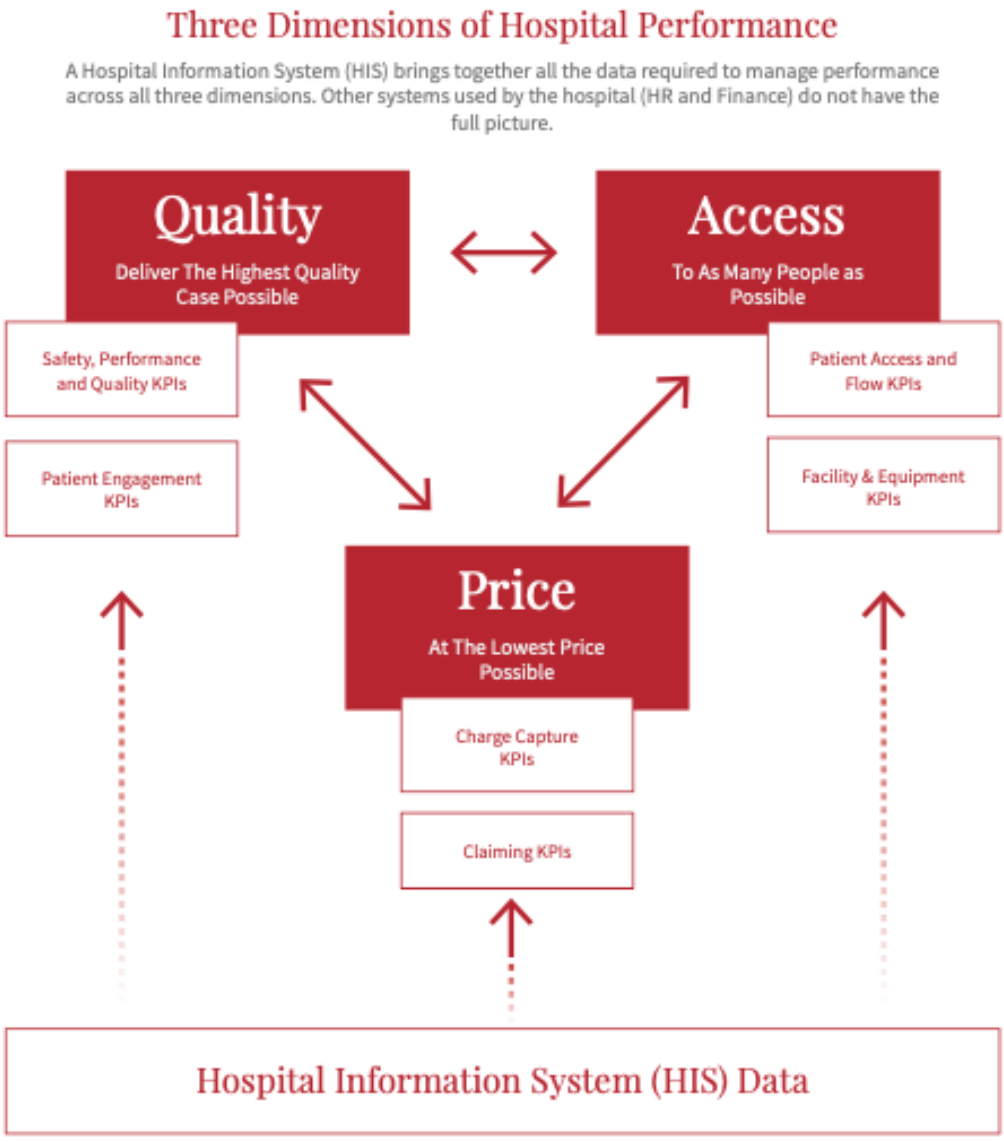
It is tempting to try and maximise performance along all three dimensions simultaneously: improve quality, improve access, and reduce prices (or costs). However, a hospital is a "system" and maximising performance of one part of the system does not necessarily result in maximum performance overall. The following diagram shows that a change to one dimension has consequences for the other dimensions.

It is management's job to agree on what "high performance" looks like for their hospital. Different hospitals will have different priorities. In making these trade-offs, hospital management will implicitly be acknowledging that performance metrics for some parts of the hospital are allowed to be sub-optimal, to maximise performance of the healthcare system overall.

KPIs for Measuring the Three Dimensions

Key performance indicators (KPIs) can be used to measure the performance of each of the three dimensions.

The KPIs are illustrated here:



The data in a Hospital Information System (HIS) plays a central role in generating the KPIs for these three dimensions. A hospital will have other systems, most notably Finance and HR, which also contain valuable KPI data.

However, a HIS is uniquely positioned to allow management to balance the three interrelated dimensions because the HIS is the only one that works at the patient-level. Data is not aggregated at the service, department, or hospital level. This granularity allows hospital management to create actionable KPIs.

The following KPIs are provided as examples only. Every management team will need to decide on their own KPIs and provide unambiguous definitions for each of them, definitions which make sense to their staff.

It should also be noted that some KPIs can fit into multiple categories. For example, the 'Readmission Rate' can either be a measure of the quality of care (re-admissions should be close to zero), or it could be a measure of access since the expected readmission rate should be considered when deciding how many new admissions should be accepted into the healthcare facility.

Quality Dimension

Safety, Performance and Quality, KPI examples:

- Infection Rates
- Readmission Rate
- Patient-to-Staff Ratio
- Mortality Rate
- Preventable Errors/Incidents
- Adherence to Treatment Plans/Protocols
- Unplanned Transfers to Critical Unit or Surgery
- Time to Complete Medical Record
- Time to Complete Discharge Summary

Patient Engagement, KPI examples:

- Patient Satisfaction
- Discharges Against Medical Advice
- Patient Information Packs Distributed
- Patient Complaints/Compliments
- Privacy Breaches
- Patient Follow-Ups

Access Dimension

Patient Access and Flow, KPI examples:

- Bed Turnaround Time
- Average Length of Stay
- Patient Wait Time (Inpatient, Outpatient, ED)
- Cancelled/Rescheduled/Missed Appointments
- Admission Rate
- Discharge Planning Time
- Patient Transport Delays
- Operating Theatre Turnaround Time
- Care Coordination
- Lab Test Wait Time
- Internal/Referral Wait Time
- ED Admission to Discharge Time
- Inbound Referrals (Referred/Accepted)
- Outbound Referrals/Transfers
- Operating Theatre Cases (Booked/Performed/Rescheduled/Delayed/Cancelled)

Facility and Equipment, KPI examples:

- Equipment Utilisation Rate
- Bed Utilisation Rate
- Room Utilisation Rate (Inpatient, Speciality Wards, Operating Theatre, Outpatient)
- Telehealth Utilisation
- Total Diagnostic Tests Performed (Pathology/Radiology)
- Total Prescriptions Dispensed

These **Staff KPIs** relate specifically to a Electronic Medical Record (EMR) Additional KPIs can be pulled from the HR System. KPIs from an EMR relate to the utilisation/ mix of staff used for direct patient care.

That's information that does not exist in the HR System. All things being equal, you want to match staff qualifications, experience and skills to the clinical task being performed (e.g., the chief surgeon does not need to do all bedside consults, a junior nurse can take and record observations in an electronic health management system).

Examples:

- Surgical Consultations Performed By
- Medical Consultations Performed By
- Nursing Consultations Performed By
- Pharmacy Consultations Performed By
- Allied Health Consultations Performed By
- Surgical Attendance (Surgeon, Assistants, Anaesthetists)

Price Dimension

The **Billing Charged Captures** KPIs relate to making sure that all services performed can be attributed to the patient that received those services. For example, if a pathology test is not correctly attributed to the patient, that pathology test will not be invoiced, and the hospital has effectively performed the service for free, hospital billing software negates these issues.

Examples:

- Percentage of Diagnostic Tests Invoiced
- Percentage of Consultations Invoiced
- Percentage of Medications Invoiced
- Difference Between Estimated and Actual Costs (if patients get treatment estimates)
- Invoice Generation Time

The **Claiming** KPIs relate to how well the hospital claims benefits from the government or the patient's insurer. Invoicing and claiming could be done from a separate medical billing system (assuming that hospitals decide to claim on patient's behalf rather than invoicing the full amount and asking patients to seem reimbursements). But if claiming is done from a HIS or EMR then the following KPIs should be considered:

- Claim Submission Time
- Claims Denied or Reduced
- Deposit Taken on Admission
- Payments Made at Discharge

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