

# Managing Patient Flow Variability as a Foundation for Enhancing Access, Quality and Safety of Care within NHS Scotland

## Introduction

A global leader in patient safety, National Health Service Scotland (NHSS) has been working with the Institute for Healthcare Optimization (IHO) to reduce delays, improve efficiency and further enhance the quality and safety of care. In a first of a kind nation-wide initiative, NHSS' Whole System Patient Flow Programme collaborated with IHO to develop nation-wide capability to implement scientific operations management methods, and to redesign patient flow at 4 pilot Boards within NHS Scotland.

## The Challenge

Designing care systems with effective patient flow is critical to the delivery of NHS Scotland's Quality ambitions of safe, person centred and effective health care, as well as, to the delivery of NHS Scotland's ambitions relating to timeliness and efficiency of services. Measures of flow in healthcare systems such as access standards for elective and emergency care indicated that some NHS Boards face considerable challenges in managing the flow of patients through the system. A high level of variation both natural - and artificial affected the way demand is managed within healthcare systems. A growing evidence base for the application of operations management science to healthcare supported its use in tackling variation in order to improve access, enhance quality and safety, and better manage limited resources. In addition to addressing variation, NHS Scotland wished to develop capacity to ensure sustainability as demographic changes continue to increase the pressure on its health and social care delivery system.

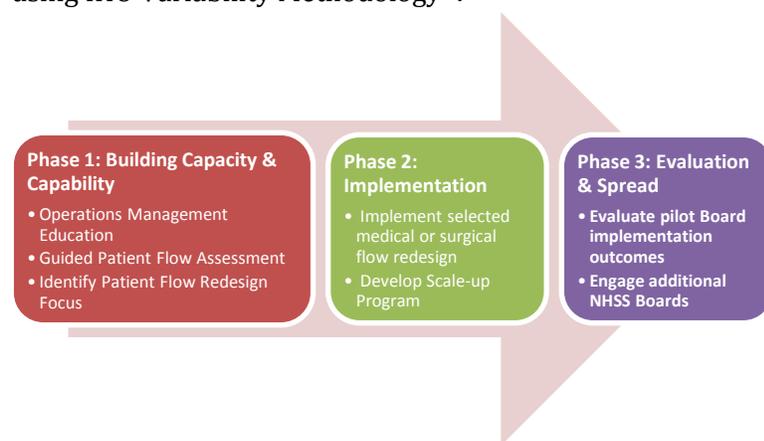
## IHO Variability Methodology®

While most public and private sector service and manufacturing companies have applied Operations Management techniques to significantly improve the quality and efficiency of their operations, hospitals have not as yet benefited from the only scientific approach to achieving these goals. The inability to routinely align capacity with patient demand results in both system stress and inefficiency. Variability in scheduling, capacity allocation and process are key to addressing issues such

as hospital-wide overcrowding, clinician and nursing stress, medical errors, waits and delays, and cancellations. IHO Variability Methodology® focuses on critically evaluating variability in order to distinguish between natural clinically-driven variability, which must be managed; from the more pernicious artificial variability that is man-made and must be eliminated.

## The Programme

The NHS Scotland National Team for Whole System Patient Flow and IHO organized a multi-phase programme starting with training and capacity building in Operations Management and IHO's Variability Methodology. IHO guided the National Team, and 4 Boards that agreed to participate in a Proof of Concept pilot, through a Guided Patient Flow Assessment (GPFA) which culminated in identification of key bottlenecks, and prioritized bottleneck areas of focus for each Board. Each pilot Board then worked on either their medical or surgical services to reengineer their operations using IHO Variability Methodology®.



While pilot Boards worked on implementing changes, the National Team engaged and led 7 additional NHSS Boards in a patient flow assessment program (ScotPFA) based on IHO methodology. Implementation of various changes at the 4 pilot Boards began to reveal the benefits of improved flow in various ways. Simultaneously all mainland boards have now been engaged by the National Team and are making good progress with their projects. In order to formalize capacity building NHSS and IHO are moving toward offering a multi-level certification program for clinicians, performance improvement managers and data specialists.

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## Results Thus Far

The 4 pilot boards have reported numerous subjective and measurable improvements from their work so far, including:

- Created access for additional 1,072 patient admissions without adding expensive new beds or medical and nursing staff
- Increased compliance with clinically acceptable waiting limits for unscheduled surgery from about 85% to over 95%
- More patients are being admitted to appropriate wards
- More patients are moving from receiving units to inpatient wards during day time hours when they can receive earlier consultant review in a more timely manner.
- Fewer patients are being asked to come to hospital the day before planned surgery
- Identified opportunity to increase admissions further by about 2,100 per year without adding resources

*"Effective patient flow is a vital part of running a quality healthcare system - the best care can only be delivered when the patient is in the right place with the right treatment and the right information at the right time. This programme has seen a combination of clinical and managerial commitment and dedication, which has demonstrated real reductions in delays and improvements in patient care through improving the flow of patients and information throughout the system"*

**Professor Jason Leitch, National Clinical Director, Scottish Government**

*"From a clinicians perspective I would say that, along with a number of other initiatives, the work with IHO at FVRH has resulted in more patients being admitted to the most appropriate ward earlier, receiving speciality care sooner and spending less time in hospital. These have important patient safety benefits, as well as improving patient flow."* **Dan Beckett, specialty adviser for Acute and General Medicine to Chief Medical Officer NHS Scotland**

*"The organisation and streamlining of emergency patient care has brought a different focus to clinical engagements ensuring the appropriate prioritisation of care. It has also given a clear direction to staff who are co-ordinating the theatre provision and the improvements in terms of patient LOS reduction have brought tangible benefits to the forefront of the IHO activity."* **Susan McFadyen, General Manager, Glasgow Royal Infirmary**

*"Following the introduction of the IHO project, emergency theatre work has become more organised and efficient. Communication between theatre staff, surgeons and anaesthetist has greatly improved facilitating patient turnover"* **Rosie Snaith, Consultant Anaesthetist, Glasgow Royal Infirmary**

*"The project with IHO has delivered a number of benefits at Glasgow Royal Infirmary. It has improved the focus on clinically relevant data collection to support service development. The most obvious change has been the co-ordination of emergency theatre cases across surgical specialties and improved access to this critical resource. Through our involvement patients' time to treatment has been accelerated and significant reductions in hospital stay have been realised."* **Graham MacKay, Consultant Colorectal Surgeon, Glasgow Royal Infirmary**

*"I have found that since implementing IHO's variability methodology our emergency theatres have worked more efficiently and patient throughput has improved without compromising quality of care or patient safety. Staff are clearer as to the order of the list and there is a central point for info/contact. I also have a sense of satisfaction and achievement as Hub coordinator"* **Susan Nagle, Emergency Theatre Hub Coordinator, Glasgow Royal Infirmary**

*"One important strand of the Whole Patient Flow Improvement program is timely Operating Theatre access for patients who require emergency or urgent procedures. Ensuring that emergency patients have the right operation at the right time performed by the right team is not a trivial exercise and requires careful analysis and planning to ensure improvements in patient safety."* **Stuart Oglesby, Consultant Oesophagogastric & General Surgeon, NHS Tayside**

*"There's less debate and challenge within theatres to scheduling emergency patients"* **Theatre nurse**

*"You now know when a patient will have their operation with less concern of delays and cancellations"* **Nursing Staff**

*"There's better engagement between specialties in theatres"* **Consultant Anaesthetist**