

UK Impact of Change® (IoC)

Methodology



health care intelligence

Sg2 Impact of Change® Methodology Statement

Sg2's Impact of Change forecast projects demand for health care services over the next decade, examining the cumulative effects and interdependencies of key factors driving change in utilisation. Hundreds of organisations rely on the Impact of Change to support service line development, innovation adoption, facility design and planning for Systems of CARE (Clinical Alignment and Resource Effectiveness), which encompass a patient's experience across the entire care pathway.

The Impact of Change is a powerful analytical framework for strategic planning and business development, allowing you to develop clinical programmes and services that will respond to the specific needs of your market today and in the years ahead. The NHS faces a number of challenges in the coming years around the best utilisation of resources. Forecasting demand based on underlying diseases and conditions allows providers to more accurately anticipate changes in patient volumes, enabling more effective planning for both the near- and long-term.

The Impact of Change forecast enables you to:

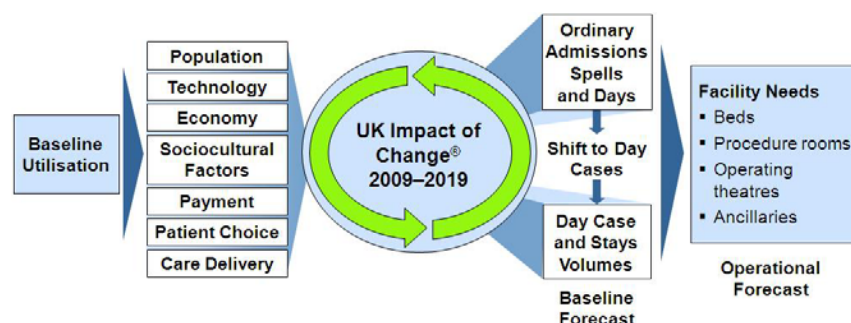
- Quantitatively understand how future disease profiles will drive demand for services
- Allocate resources appropriately in the inpatient setting
- Identify where you need to invest, partner or build your organisation
- Develop effective marketing/business development strategies and community outreach plans
- Identify new programme elements and capacity needs

Sg2 experts guide the development of the Impact of Change, providing a combination of rigorous analysis and experienced judgment. Experts systematically monitor and track emerging trends in health care, continuously updating forecast impact factors.

Our work in the US, Asia, Australia and in the NHS over the last decade has allowed us to empirically test our approach and demonstrate that our forecasts are a substantially more accurate predictor of future demand than projections based on past utilisation adjusted for population growth.

Overview

The Impact of Change (IoC) model is a comprehensive forecasting tool that tracks over 1,000 factors and incorporates population growth to quantitatively predict impact on healthcare utilisation across all major care pathways. Across the whole model, 600 variables are tracked and mapped to different HRGs. The variables can be mapped into seven distinct areas; population, technology, economy, sociocultural factors, payment, patient choice and care delivery. The Sg2 Clinical Experts assign Impact Factors (quantitative estimates of change) to forecast how a given variable will influence volumes, length of stay and the shift to more cost-effective healthcare settings.



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Sg2s Framework

On a daily basis, Sg2's Experts (Doctors, PhDs, Nurses and MBAs) track the latest clinical research via academic journal review, clinical trial review, conference attendance, practicing clinician opinion surveying and dialogue with industry specialists.

Our clinical experts synthesise this research and develop an expert-based outlook on the effectiveness and projected adoption of a given technology or trend. Experts work with the IoC modeling team to translate this research-driven outlook into the quantitative impact factors that the model uses to adjust utilisation projections.

Our approach

Sg2 uses deterministic equations¹ to model future utilisation. The model starts with an initial set of HRGs (volumes and length of stay) and builds in factors (outlined below) which develop over time, affecting initial volumes to generate a sequential evolution in utilisation.

Impact Factors

Population: The IoC incorporates population projections that account for the latest fertility, mortality and migration forecasts by age, gender and geographical region. We have used the figures given by the Office of National Statistics (ONS) 2008 Subnational Population Projections data set.

Care Delivery: Operational practice patterns and information technologies will change where and how patients move through the inpatient setting over the next 10 years. This component includes variables such as intensivists, computerised order-entry, and electronic medical records.

Technology: Technology will change the treatment and procedure landscape over the next 10 years – what those treatments and procedures are, where they are performed, and who is required to perform them. Technology will also reduce time spent in the hospital for many kinds of admissions.

Medical therapies, implants, advanced medical and imaging diagnostics, screening and minimally invasive procedures are examples of variables included in the technology component. Our experts draw their projections on the effectiveness of new technologies and drugs from peer-reviewed articles in journals. We also appreciate that technology take-up is gradual and we are careful to phase the impact of these developments over a number of years, and with consideration of market-specific regulation.

Sample technologies driving change in the all-spend UK IoC Forecast are highlighted in the diagram below. For more detail on individual technologies driving the IoC Forecast, please contact Sg2.

Socio-cultural: Cultural behaviors, consumer expectations, changing disease prevalence and patient lifestyles have significant impacts on type and severity of inpatient care. Variables such as increasing obesity and diabetes, expectations of continued activity at older age and decreasing smoking rates impact the sociocultural component of the model.

Economy: The amount of funding given to the NHS over the next ten years will have a considerable impact on the types of care it chooses to undertake and the setting in which this care takes place.

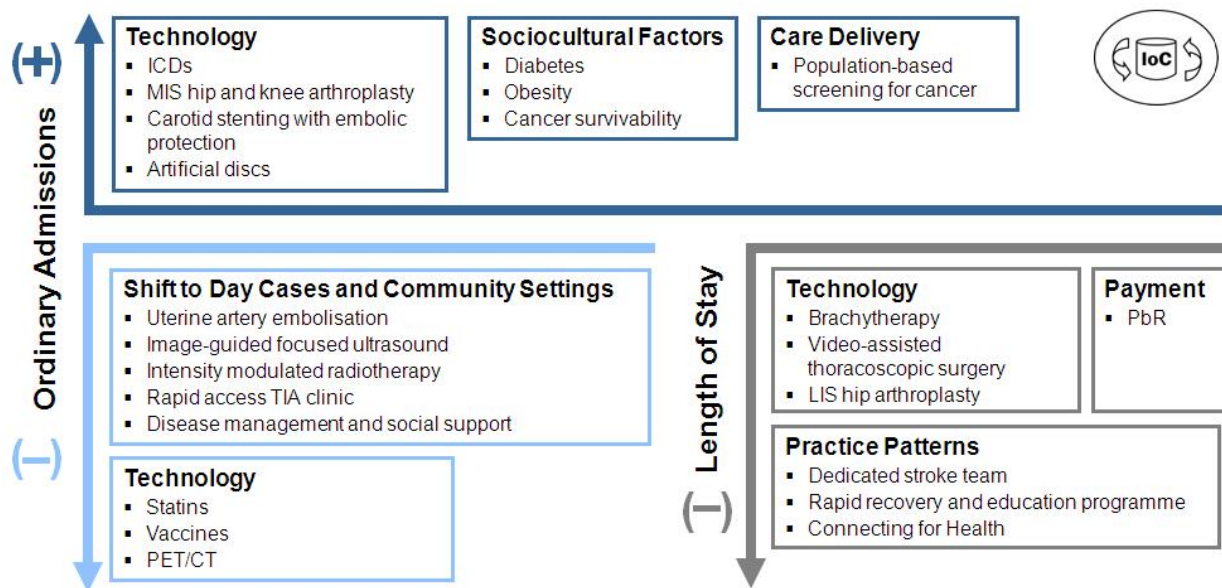
Payment: The move towards GP-led commissioning is likely to have a huge impact on the types of care that reach secondary service. GPs will be incentivised to cut potentially avoidable referrals into secondary care and become more involved in the design and implementation of alternative pathways of care.

¹ Goldberg, S. "Introduction to Difference Equations," Dover Press 1986

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Patient Choice: Increasing access to data and information on quality of care in different settings is likely to have an impact on demand for services in the coming decade. Patients have more information on their ailments than ever before and are better equipped to self-manage their own conditions. Patients and public access data on different services will likely lead to a change in the distribution of care settings, with patients not necessarily choosing to attend their closest hospital and instead choosing those with a better perceived reputation.

Series Components and Key Impact Factors Driving Change within the All-Spell UK IoC Forecast



ICD = implantable cardioverter defibrillator; LIS = less invasive surgery; MIS = minimally invasive surgery; TIA = transient ischaemic attack; PbR = payment by results; PET = positron emission tomography.

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Data Definitions and Data Uses Relevant to Sg2's Impact of Change Forecast for COPD as Published in the HSJ

Standardised Mortality Ratios (SMR) are included as a proxy measure of clinical quality. This measure is taken directly from the NHS Information Centre, Copyright © 2010. Re-used with the permission of The Health and Social Care Information Centre. All rights reserved.

Baseline figures for COPD utilisation are taken from the 2008-09 HES feed (the latest full year data set to be published). Sg2 understands that Trusts will have access to more up-to-date data sources and we are happy to work with you to understand how individualised data sets influence the forecast output.

COPD spells are defined as all admissions coded with HRGs D39 and D40.

Total savings are calculated by multiplying a) the number of spells that the model predicts could be avoided using each consensus and proactive care pathway remodeling strategies altering the care pathway, by b) 2008/09 Admitted Patient Care Mandatory Tariffs, HRGs D39, D40, adjusted for Market Force Factors. The model assumes all COPD spells are non-elective and thus the non-elective tariff and non-elective Market Force Factor-adjusted tariff is applied to all calculations, including spells with a LOS exceeding the HRG specific non-elective long stay trim-point.

Total savings are divided by baseline population to adjust for different market sizing.

Calculated savings opportunity begins in 2014, matching the target year of the £20 billion NHS productivity savings proposed by the government. In the supplementary data provided, the forecast extends to 2020.

Total number of COPD spells as a percentage of all inpatient spells is included. The percentage of these spells which the model suggests could be avoided by 2014 is displayed.

Anticipated savings are expressed as a percentage of the total baseline spend on COPD.

For a detailed list of key impact factors driving change across COPD spell utilisation, please contact Sg2.