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The Introduction of an Adult Sweat Test Clinic in an Acute Dublin Academic Teaching Hospital

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The Introduction of an Adult Sweat Test Clinic in an Acute Dublin Academic Teaching Hospital

Catríona Higgins

A Dissertation submitted in part fulfilment of the degree
of MSc Leadership, Institute of Leadership, Royal College of Surgeons in Ireland

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Declaration Form

Declaration:

“I hereby certify that this material, which I now submit for assessment for the Year 2 dissertation on the MSc Leadership is entirely my own work and has not been submitted as an exercise for assessment at this or any other University.”

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Abstract

**Aim:** The aim of this organisational development project was to introduce a sweat test clinic for adult patients’ in a large academic teaching hospital. **Rationale:** The sweat test is used in the diagnosis of cystic fibrosis. The introduction of Ivacaftor, trade name Kalydeco®, for a particular subset of cystic fibrosis patients and the recognition of milder phenotypes of cystic fibrosis in adults had resulted in an increased demand for an adult clinic. Prior to the introduction of the adult service 33 adults were awaiting sweat test appointments and unable to access a sweat test service. **Change process:** The Health Service Executive change model was used as a framework to guide the change process. A vision for the change was created and the introduction of the clinic was aligned to the mission of the organisation and that of the Health Service Executive, that patients’ will have access to high quality health care. **Evaluation:** The context, input, process and products model was used to evaluate the organizational development process. This involved evaluation each of the objectives of the project. A target of 8 weeks wait time for an appointment has been achieved. **Results and conclusions:** The adult sweat test service was implemented with two out of 14 patients’ having a chloride result indicative of cystic fibrosis. A further 19 patients are scheduled for appointment. Use of a structured change model guided successful implementation of the clinic. The target appointment wait time will require regular auditing by the Clinical Chemistry Department to ensure compliance. This will form part of the regular auditing of services as part of the overall laboratory quality management system. The service will be monitored for any increase or decrease in demand ensuring effective use of resources. This is report monthly at the Clinical Chemistry Operational Group meeting.
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List of Abbreviations

OD  Organisational Development
OPD  Out Patient Department
DATH  Dublin Academic Teaching Hospital
CF  Cystic Fibrosis
HSE  Health Service Executive
SMART  Specific, measurable, achievable, realistic, time-bound
PIMS  Hospital patient management system
SWOT  Strengths, weaknesses, opportunities, threats
CINAHL  Cumulative index to nursing and allied health literature
RCSI  Royal College of Surgeons in Ireland
KPI  Key performance indicator
NHS  National Health Service (UK)
ABF  Activity based funding
TAT  Turnaround time
MDT  Multi-disciplinary Team
HIQA  Health Information and Quality Authority
WTE  Whole time equivalent
CIPP  Context, Input, Process, Product
WHO  World Health Organisation
INAB  Irish National Accreditation Board
ISO  International Organisation for Standardisation
RCSI  Royal College of Surgeons in Ireland
SLA  Service Level Agreement
1.0 Introduction

1.1 Introduction

The purpose of this organisational development (OD) project was to introduce an adult sweat test clinic in the outpatient department (OPD) of an Acute Dublin Academic Teaching Hospital (DATH). Before the introduction of the adult sweat test clinic, the organisation provided a paediatric sweat test service. It was envisaged that upon implementation of the adult service, both the paediatric and adult sweat test clinics would be maintained as a combined service. The OD change was achieved through a review of current appointment requests and scheduling requirements. Current Hospital CF and infection prevention and control guidelines were adhered to when implementing the clinic, ensuring patient safety. Upon successful implementation of the service, it was envisaged that the organisation would be capable of providing both adult and paediatric sweat test appointments to all requesting clinicians, in the appropriate setting and in a timely manner.

This chapter discusses the rationale for the OD project, the organisational context within which it was implemented, and the aims and objectives of the project. It will also discuss the role of the author within the organisation, and in the change process itself. The Health Service Executive (HSE) Change Model (*Improving our services: A user’s guide to managing change in the Health Service Executive*, 2008) was chosen to help guide the project.
1.2 Organisational Context

The organisation in which the OD project was undertaken is a 625-bed acute Hospital. It is a public, voluntary teaching Hospital, providing children’s health, adult, psychiatric and age-related healthcare on one site (Organisations webpage, n.d.). The patient-focused mission of the hospital aligns with the mission of the HSE which states that “people in Ireland can access safe, compassionate and quality care when they need it”, as outlined in the HSE corporate plan 2015-2017 (Health Service Executive, 2015b). The introduction of the HSE Ivacaftor, trade name Kalydeco®, Reimbursement Protocol has resulted in an increase in the number of adults requiring access to a sweat test clinic. This focus of this project, which reflects the mission of the organisation, was the introduction of an adult sweat test service, thereby supporting the healthcare system to improve the experience of care (Berwick, Nolan, & Whittington, 2008).

1.3 Rationale

The Clinical Chemistry Department within the organisation runs an established Consultant led sweat test service located in the Paediatric OPD of the Hospital. The sweat test is used in the diagnosis of Cystic Fibrosis (CF). The paediatric clinics are run on two weekday mornings in a dedicated sweat test room. A trained medical scientist from the Clinical Chemistry Laboratory performs the sweat test. The appointment service is managed by the clerical staff of the Clinical Chemistry
Department, and all sweat tests performed are approved and signed off by either the Consultant Chemical Pathologist or Clinical Chemistry Registrar before results are made available to the requesting clinician. As the sweat test clinic is organised and delivered through the Clinical Chemistry Laboratory, the Consultant Chemical Pathologist is accountable for the clinical governance of the service. The Hospital is also a referral centre for the CF national newborn screening programme.

Sweat tests in the paediatric clinic are performed on symptomatic children less than 16 years of age, and on patients identified as having an elevated immunoreactive trypsinogen (IRT) as part of the national newborn screening programme. From the end of 2014, there was an increase in the demand for sweat tests to be performed on patients 16 years of age and over. These requests consisted of symptomatic adult patients and previously diagnosed CF patients. The adult CF patients are receiving a HSE funded drug, Ivacaftor, which has been successful in treating patients with a specific mutation, G551D. A requirement of HSE funding for Ivacaftor is that patients receiving treatment undergo an annual sweat test to demonstrate its effectiveness (Ivacaftor (Kalydeco) Reimbursement Protocol, n.d.).

The paediatric clinic is located in a designated room of the paediatric OPD. Due to child protection issues, it would not be feasible for adult patients to be facilitated in this area. The potential for cross infection between external CF patients and paediatric patients attending the CF Department in the Hospital was also highlighted by the paediatric CF Consultant in the Hospital. Current Hospital protocol ensures that CF patients carrying different microorganisms are separated at appointments to reduce any unnecessary infection risk. To ensure any cross infection is minimised,
the room in which the CF patient has attended is cleaned with specialised equipment by the facilities management team within the Hospital. This process is implemented according to the infection control guidelines for CF patients set out by the Hospital.

The OD project came about as a result of a number of factors. Screening for CF was introduced as part of the newborn screening programme in July 2012. As a result, the number of symptomatic patients attending for sweat tests has declined. At the same time, there has been an increase in the demand for adult sweat test appointments for CF patients receiving Ivacaftor. The CF Department within the organisation had expressed concern at the possibility of external CF patients attending clinics in the same location as their CF patients. If the clinics for both adult and paediatric patients were situated in proximity, this would increase the potential cross infection risk between CF patients. In addition to the adult CF patients, there has also been an increase in the number of clinicians requesting a sweat test on symptomatic adult patients.

Due to the coexistence of both paediatric and adult services within the organisation, the hospital has become a referral centre for both adult and paediatric sweat test requests. Adult hospitals within the catchment area would previously have had no requirement to provide a sweat test service, as patients are more likely to be diagnosed before adolescence. The Clinical Chemistry Laboratory within the organisation has access to all necessary training and equipment required to perform a sweat test. The current service provided by the laboratory is required to adapt to meet the demands of the clinicians using the service. This is also in line with the HSE National Service Plan 2016 where the focus is on reducing waiting list and
improving quality of care for patients who require access to health services (Health Service Executive, 2016).

1.4 Aims and Objectives

An objective is a specific statement or statements of the outcomes to be achieved as a result of a planned change (Improving our services: A user’s guide to managing change in the Health Service Executive, 2008). Specific, measurable, achievable, realistic and time-bound (SMART) objectives were established to assist in achieving the aim of the project. A SMART goal is relevant to a particular aim of an organisation and ensures that there will be a measurable and attainable outcome (Chamberlin, 2011).

1.4.1 Aim

The aim of this project was to introduce an adult sweat test clinic in the OPD of an Acute Hospital.
1.4.2 Objectives


2. By 20th January 2016, 100% of appropriate clerical staff would be trained on the Hospital patient management system (PIMS), used for appointment management.

3. Activity-based funding for each sweat test would be calculated by 14th March 2016.

4. From 28th March 2016, an appointment wait time of eight weeks for all new adult sweat test referrals would be achieved.

1.5 Role of the student in the organisation and project

As a Senior medical scientist in the Clinical Chemistry Laboratory, the author was involved in maintaining the laboratory element of the paediatric sweat test service. On completion of this project, it was envisaged that the adult clinic, for patients over 16 years of age, would be integrated with the paediatric service. The author had a key role in communicating effectively with all stakeholders throughout the process. The authors’ role in this project included engaging with stakeholders, and developing and leading the change. To achieve this a SWOT (strengths, weaknesses, opportunities, threats) analysis and stakeholder analysis was carried out during the planning phase to identify potential areas of resistance and threats to the implementation of the proposal. A force field analysis was also performed.
literature review was completed to investigate access to sweat test clinics where there is a suspicion of CF in an adult patient. This evidence was used to help reduce resistance encountered during the implementation of the clinic.

As described by Alimo-Metclafe and Alban-Metclafe leadership is firmly at the core of the modernisation of the health service (Alimo-Metclafe & Alban-Metclafe, 2006). Given the changes and difficulties the Irish health service has faced real opportunity exists for leadership at all levels. Rather than followers disconnected from leaders, a challenge exists to strengthen the leadership from within, delivering high-quality services with limited resources and collectively engaging all members of the organisation.

1.6 Summary and conclusion

The aim of this OD project was to implement an adult sweat test clinic in the OPD of an Acute Hospital. The HSE change model was used to facilitate the process, and SMART objectives were set out to ensure the aim would be achieved. The following chapters will discuss the evidence for the change, the theory regarding organisational change and the OD process, and the evaluation of the SMART objectives set in the planning stage of the project.
2.0 Literature Review

2.1 Introduction

The purpose of chapter two is to provide a systematic review of the literature around the introduction of an adult sweat test clinic. A literature review encompasses a literature search utilising appropriate databases, analysis of papers, referencing, formulating research proposals and writing thematic reviews of the literature using critical analysis (Leger & Sirichand, 2015). Common themes within this literature review are then discussed in relation to the OD project, and any implications for the project are highlighted.

Worldwide the life expectancy of patients with CF has increased over the last two decades (Edwards, Clarke, & Greenop, 2013), which will have implications for specialist health services required for CF patients. It is also now widely recognised that outcomes for patients cared for in specialist CF Centres are better than for those who are not, and the key to the effectiveness of the specialist CF centre is the multidisciplinary team (MDT) (Conway et al., 2014). Ensuring timely access to services improves the patient experience and outcomes. The quality of patient care is predicated on the ability to diagnose and commence treatment as quickly as possible (O’Riordan et al. 2013).

The HSE have stated that €97 million of the health budget for 2016 has been allocated for specific new service developments while acknowledging the current
system lacks the capacity to provide accessible services required to meet current population demands (Health Service Executive, 2016). This highlights the difficulties faced by many healthcare organisations, the demand for new services and an increasing population with no concomitant increase in capacity. The HSE regularly reports on waiting times for accessing hospital services. Patient waiting times are often used as an indicator of quality within health systems (Olisemeke et al. 2013; Lodge & Bamford 2007). Each organisation has a responsibility to manage appropriately its services ensuring patients are not waiting excessively to access hospital care.

2.2 Search Strategy

An initial literature review focused on the requirement for adult sweat test clinics in the diagnosis of CF. The following databases were utilised: Embase, Medline (Ovid), Google Scholar and Lenus. Funding for Ivacaftor, the treatment for CF patients with the G551D genotype which is present in approximately 11.6% of the Irish CF patient population, was introduced in 2013. With this in mind, the literature review was date limited for each database. Where literature could not be obtained, the timeframe was extended. As medical knowledge and expertise advance, the life expectancy for CF patients has also increased. Patients who would not have reached adulthood are now surviving into middle age, and this has also impacted the number of mild variants of CF being identified (Traeger, Shi, & Dozor, 2014). This relatively recent advancement also influenced the time span of the review. The four databases were searched using a combination of the following; adult, sweat test, clinic, service, cystic
fibrosis, diagnosis in adults. A total of 22 articles from this search were deemed relevant to the review.

Upon reading the articles from the search, a second literature review was performed focusing on the wider topic of commissioning a service. The articles from the initial review were based mainly on the use of the sweat test in the diagnosis of CF. The articles written were based on quantitative studies and data, such as the performance of the chloride method in relation to the diagnosis of CF. As the life expectancy of CF patients has only been increasing in recent years, there is relatively little-published material on CF in adults. This is reflected in the initial literature review results. The revised literature review focused on the change initiative proposal, the commissioning and implementation of a specialised service in an acute hospital. Although many of the results were not relevant to CF, they can be applied to the development of any specialist service across healthcare. Due to the requirements of a patient with CF, it can be defined as a specialist service. The databases utilised as part of the literature review were Embase, Medline/CINAHL/Health Business Elite, Emerald, Scopus, Web of Science and Google Scholar.

- Embase: The Embase database was accessed through the RCSI library on 07/02/2016. The advanced search option was used to search using the words specialist and service, specialist and clinic, commissioning, and adult. The search results from specialist and service and specialist and clinic were then combined using or. The result of this search was combined with commissioning using and. The result of this search was then combined with
the result from the adult search using and. The date was limited from 2012 to 2016. This search provided 24 articles, eleven of which were relevant to the project.

- Medline/CINAHL/Health Business Elite: These three databases were accessed together through the RCSI website on 09/01/2016. The search date was limited from 2005 to 2016. An advanced search was performed using the keywords adult services, specialist services and commissioning services. These were then combined using AND which resulted in a search total of 4 articles.

- Emerald: The Emerald database was accessed on 09/01/2016. The search period applied was from January 2005 to January 2016. The terms commissioning and specialist services were searched together using AND. The search was limited to articles that had the search terms in their abstracts. This gave 58 results, of which 11 were relevant to the review. One article from this search was not included as it had been sourced from the Embase search.

- Scopus: The Scopus database was accessed on 07/02/2016. A search was performed using the words commissioning, specialist services, adult and hospital, all combined with AND. The search was limited from 2012 to 2016. This resulted in 7 articles, 3 of which were relevant to the review.

- Web of Science: The web of science database was accessed on 07/02/2016. A search of commissioning services AND specialist services AND adults gave 11 results. The date was restricted from 2012 to 2016. Two of these articles had been found in the search of the Scopus database. Five of the remaining article were relevant for the review.
Google Scholar: An advanced search was performed on Google Scholar on 07/02/2016. A search with all of the words “commissioning a service in an acute hospital”, with the exact phrase “specialist service”, with at least one of the words “adult” and without the word “community” was performed for all articles from 2012 up to the date of the search. The articles found had the selected words occurring anywhere in the text of the article. 29 articles were found, of which four were relevant for this literature review.

The literature review yielded 38 articles relevant to the topic. Some references within the 38 articles were also reviewed where relevant. Key themes appearing in the articles were further explored. Four key themes emerged: developing quality indicators, access to services, governance, and engagement. These will be discussed in relation to the literature reviewed.

2.3 Review of Themes

2.3.1 Developing quality indicators

Key performance indicators (KPIs) are an essential tool for monitoring the performance of a service. Increasingly they are being used in healthcare to both identify where performance is good and meeting standards and to highlight areas where improvements are required. KPIs promote accountability within an organisation, allowing comparisons with other organisations and also to the stated objectives of an organisation (Health Information and Quality Authority, 2013).
Commissioning of a new service should be done in compliance with a published standard or framework, as described by Goenka, Turner and Vora, to ensure high-quality care for the service user. They reviewed task force recommendations to help assist managers, commissioners and healthcare professionals to provide advice on the structure, roles and components of specialist diabetes services for adults (Goenka, Turner, & Vora, 2011). Due to the complex nature of healthcare, this can be difficult to achieve. However, healthcare professionals have a responsibility to ensure high-quality care is provided.

Effective commissioning of a service requires a continual assessment to ensure the needs of the service users are being met (“Empowering patients through the commissioning of specialist stoma care services,” 2015). This learning is then applied to the service to support further improvements in the experience of those using and providing it (Rogers, 2013). The criteria these units are measured against will also be open to future modifications to reflect the changing directions and needs of the service meaning they will have to adopt a continual push to maintain and enhance their standards (Poppleton, Turner-Stokes, Dhillon, & Schoewenaars, 2012). KPIs provide the foundation for performance measurement and help to measure progress against predefined targets or benchmarks, spend more time on critical activities, and compare performance across the organisation (Ghazisaeidi et al., 2015).

In commissioning a service, roles and responsibilities should be addressed to ensure that standards are met to meet commissioning requirements and deliver high-quality care to patients (Goenka et al., 2011). Workforce planning, having the right staff with
the right skills in the right place at the right time (Department of Health, 2002), is
integral to service planning and delivery and will be discussed further in chapter
three. As we move towards a trend for services to be paid by activity and
increasingly related to outcome, data collection and measurement against an agreed
framework or standard is vital to provide evidence of services meeting needs and
offering the best value for money (Poppleton et al., 2012). Activity based funding
(ABF), a new model for funding public healthcare, will see providers funded in line
with activity achieved (Health Service Executive, 2015a). As ABF is introduced and
hospitals face fines for patients exceeding waiting time targets, KPIs will play a key
role in ensuring services within an organisation are utilised to their full potential.

Within the clinical chemistry laboratory of the organisation, KPI’s are already in use
to ensure laboratory services meet specific criteria such as the international
standards organisation 15189:2012 standard for medical laboratories (International
Standard ISO 15189 Medical laboratories- Requirements for quality and
competence, 2012). The adult sweat test service will be commissioned in line with
these requirements. Turnaround times (TATs) are regularly monitored for all
laboratory tests as another measure of quality. TATs for the sweat chloride and
sweat conductivity for all sweat tests, including adults, will be monitored to ensure
compliance. Insufficient collection rates will also be monitored. These will then feed
into the KPIs for the service ensuring safe quality care is delivered to the patient.
Although the laboratory would regularly measure and analyse quality indicators, the
sweat test service represents a slight variation as the laboratory is involved in issuing
appointments and monitoring waiting lists. This will require communication with
clinicians and management outside the laboratory, as well as within the Department,
to ensure HSE requirements are met. Engagement will also be required to ensure the KPIs measured feedback effectively.

2.3.2 Access to services

One way of improving healthcare is by providing innovative access to services by reviewing how they are scheduled (Berwick et al., 2008). Chronic disease, the main reason people seek healthcare in the developed world, encompasses a set of progressive and long-term medical conditions to which countries are now responding by seeking to improve services. A qualitative study involving semi-structured interviews with 40 nurses in the East of England found that nurse-led prescribing enabled nurses to overcome existing problems in service provision to improve amongst other things the access and efficiency of a service (Carey, Stenner, & Courtenay, 2014). The results of this study demonstrate the positive outcomes when a service is restructured based on what is best for the patient or new demands. Healthcare delivery is continually changing and to ensure the services required are available it is necessary to remain abreast of emerging best practice guidelines and policy decisions that may affect service provision. The study also noted concerns which were raised including increasing responsibility and the governance of the service. These are important elements in the delivery of any service to ensure patients receive safe, quality care.

Improving access can improve patient satisfaction rates (Carey et al., 2014). Part of the mission of the HSE National Service Plan 2016 is that patients in Ireland can
access safe, compassionate and quality care when they need it, with one of the goals being fair, equitable and timely access to services (Health Service Executive, 2016). Patients rate access to appropriate networks and services as one of the most important aspects of care (Burns, Silberman, & McCann, 2010). Although this study looked at long-term access and continuity of care for patients with a long-term neurological disorder, the access they required was similar to that of other patients with a long-term illness. A study evaluating the effectiveness of a specialist nursing service for adult patients with congenital heart disease was conducted over two years using postal questionnaires. Statistical analysis on the quantitative data identified priority areas such as specialist knowledge and expertise, and accessibility was a dominant topic amongst respondents (Hatchett, McLaren, Corrigan, & Filer, 2015). The participants in this study had already received access to specialist care, which may affect the satisfaction rating of the responses. Gaining access to specialist services is often seen as the stumbling block in healthcare. In a study using a mix of methods to assess progress towards national service improvement for long-term neurology care, organisational restructuring, limited finances and competing policies had hampered progress and were barriers to implementation of services (Gridley, Aspinal, Bernard, & Parker, 2011).

While advances in treatment have improved the survival age for CF patients, the risk and consequence of infection remains high, resulting in strict infection control protocols for CF patients attending hospitals. Isolation units are often required for these patients, resulting in access issues where a large number of CF patients are attending a particular unit. The CF community wishes to ensure standards of care and equal access to specialist services for all patients (Cystic Fibrosis Trust, 2011).
The demand placed on healthcare services due to a growing population and an increase in the number of people living with a long-term illness can adversely affect accessibility to these services. Each hospital must be responsible for ensuring they provide the right service to the right patient at the right time.

In Ireland 48 acute hospitals provide a broad range of inpatient and outpatient services to a population of almost 4.6 million (“Acute Hospital Division Operational Plan 2015,” 2014). Funding is an essential consideration when commissioning services (Burns et al., 2010). There is often a conflict in healthcare where the cost of providing high quality, best practice healthcare is rising each year, and the demand for these services is also increasing. Daidone and Street looked at applying empirical hospital costing approach, a model of costing which builds on patient-level data, to determine the additional cost to hospitals that delivered specialist care. Analysing costs for over 12 million patients in 163 English hospitals, they found that, for nineteen types of specialised care, patients did not have higher costs than other patients allocated to the same cost group. However, costs were higher if a patient had cancer, spinal, neurosciences, cystic fibrosis, children’s, rheumatology, colorectal or orthopaedic specialised services (Daidone & Street, 2013). Access to specialist services in hospitals may be difficult if a hospital is not subsidised or in receipt of additional funding to provide these services.

Strategic planning is vital to meet the future challenges in healthcare (Hatchett et al., 2015). A large population-based study investigating the use of psychiatric services in adults with intellectual disability found that less than 50% accessed the services (Bhaumik, Tyrer, McGrother, & Ganghadaran, 2008). The study resulted from
concerns over access to services for these adults and the results highlight the need to ensure services are accessible to those for whom they are intended.

2.3.3 Governance

Clinical governance, a system within an organisation that ensures procedures are in place to provide continuous improvement, provides the opportunity to understand and develop the fundamental components required to facilitate the delivery of quality care (Halligan, 2001). It is the central element of a framework that supports the delivery of quality. The introduction of clinical governance as a means to drive up the quality of health care required action at all levels within organisations (Rogers, 2013), who discussed the successful implementation of a clinical governance development programme to educate national health service (NHS) staff. A national drive to promote clinical governance and enter it into local systems and processes was the trigger, focusing on a bottom-up approach, acknowledging the many successful service initiatives that happen at the local level. Although clinical governance was deemed to be successfully implemented, the study mentions the low number of participants relative to the size of the NHS workforce (Rogers, 2013). This highlights the difficulty of introducing any new service. While many successful services are provided at the local level, there can be difficulty communicating these changes across the health service, thus compromising the sustainability of the initiative. While the study acknowledged the positive changes happening at the local level, due to the complexity of the health service, support is often required at a senior level to ensure a service is maintained.
Clinical governance was introduced to ensure healthcare was provided in a patient centred way and that the commitment to high-quality care was the focus of everyday practice (Scally & Donaldson, 1998). Results from studies investigating the effect of clinical governance programmes suggest that effective working by health professionals, using the principles of clinical governance, can improve care for patients (Jenkinson, 2006). While this study looked specifically at the effect of a clinical governance programme on stroke services, it could be applied to other areas of healthcare. Clinical governance is designed to promote good practice, and a key feature of it is to monitor and improve professional performance (Brennan & Flynn, 2013). For governance to be effective, there must be a desire to refocus efforts and energies ensuring maximum penetration of services. An all too common experience reported by consumers and carers is for a person to get lost somewhere between the hospital discharge and the primary care provider, or between the employment support services and the housing provider (Rosenberg, 2012).

The introduction of clinical governance structures is in part due to declining standards in the provision of healthcare. Other contributing factors include changes in health policy and changes in the delivery of healthcare (McSherry & Pearce, 2011). Improvements in service provision are always welcomed and any service being commissioned should have clinical governance to the fore ensuring the best possible care and outcomes for all who avail of it. An audit of specialist inpatient services documenting deficient care standards and lacking person centred planning indicated that these services were lacking clinical governance (Barron, Robotham, & Hassiotis, 2008). Recommendations were similar to principles set out in the
European Convention on Human Rights, and reiterate the importance of mechanisms incorporated within clinical governance such as communication with the patient and education and training.

Reform is fundamental to service improvement and a priority for those seeking to improve the experiences of patients and staff (Rogers, 2013). The need for a role in feedback mechanisms, research and promoting evidence-based practice (Rosenberg, 2012) is seen as an important function of any governance structure. In this community-based study to determine the main concerns of service providers and service users key themes emerged; funding, consultation and resource monitoring. These concerns should be to the fore where governance structures are introduced with the aim of improving a service and making it more effective. To ensure best practice commissioners and funders of such services ensure information is gathered and provided relating to evidencing and meeting needs (Rogers, 2013).

2.3.4 Engagement

Engagement is classified as a positive, fulfilling, work-related state of mind, characterised by vigour and dedication (Schaufeli, Salanova, González-Romá, & Bakker, 2002). Engagement involves listening to people and recognising what is needed to motivate and encourage them. Individuals seek to experience meaningful work that maximises their sense of motivation (Yasin Ghadi, Fernando, & Caputi, 2013). In 2014, the first ever health sector-wide survey was conducted by the HSE to provide an accurate measure and reflection of employee sentiment and
engagement. With a response rate of 7.1%, the low survey completion rate was in itself a measure of engagement within the workforce at the time (Ipsos MRBI, 2015). An engaged workforce within healthcare is important to ensure patients benefit from the best care possible when they require it. Organisations also have a responsibility to their staff to ensure they create a working environment suitable to meet demands. This will be discussed further in chapter three with the concept of ethical leadership. Responding to the survey outcome, the HSE development a staff engagement improvement plan.

Healthcare organisations will not be fully effective if departments continue to work in silos, which characterise traditional approaches to health care (Rosenberg, 2012). An integrated approach and joined up services are required, one that promotes engagement with service users and service providers. This is especially true for patients requiring input from multiple specialities within healthcare. For patients to have confidence and trust in the care provided, all carers must communicate to ensure the patients’ needs are met. Leadership and successful collaboration and cross-boundary working are among the key factors thought to enhance transitional care between services (Ogundele, 2013). When an integrated approach was used staff reported benefits regarding their own personal and professional development, local team working and, importantly, in respect of the services in which they work (Rogers, 2013). A patient-nurse collaboration and a drive to improve the delivery of fit-for-purpose stoma care services that are safe, effective, patient-centred, equitable, and easily accessible have resulted in delivering what patients want rather than what service providers think they need (“Empowering patients through the commissioning of specialist stoma care services,” 2015). This initiative helped stoma
care patients in the community, reducing the burden on local hospitals. It is an example of specialist services coming together to provide best practice care for the patient, who has also been involved in the planning.

Patients with long-term conditions require support from a range of services and professionals but often find these do not work in a joined up way (Gridley et al., 2011). This paper used three different methodologies to assess the provision of integrated services for people with long-term neurological conditions. These patients require input from multiple specialities, similar to the requirements of a CF patient. However, there is little-published data on the cost-effectiveness of these services (Gridley et al., 2011). Outcome measures may be related to clinical outcomes, outcomes relating to patient quality of life or experience may provide more information.

One finding of a study looking at the effect of a clinical governance programme was it engaged over half of NHS organisations and reaching a “tipping point” of momentum across the NHS (Rogers, 2013). Staff engagement also had a positive effect on the patients and service users. Engagement across services is important for the effective management of specialist care services such as CF. The driver for this organisational development project was the lack of access to sweat test clinics for adult patients. As CF is an illness that is more likely to be diagnosed in childhood, and with no effective treatment available, the demand for an adult service was low. The introduction of Ivacaftor and the recognition of milder CF phenotypes in adults (Woods, 2013) has increased demand. The importance of engagement with all service providers is evident in the HSE reimbursement protocol for Ivacaftor, which
states that all patients must have an annual sweat test. As these patients would not have previously required regular sweat testing, and with a large number of these patients under the care of specialist adult CF hospitals, they had no access to a sweat test service. Current sweat test clinic providers had received no prior notification of the potential increase in clinic demand. This demonstrates the complex nature of healthcare, the requirement for effective communication and the difficulties in engaging with all service providers.

2.4 Implications for the project

The above literature review provides a broad overview of current practice in commissioning services within healthcare. Publications on accessing services and the requirement of high-quality care are abundant. No standard or guideline exists for commissioning a new healthcare service in Ireland. Frameworks for particular healthcare services have been developed by the National Health Service (NHS) in England. Commissioning a service relies on active involvement from all individuals involved. In a complex system sure as healthcare, this can be a challenge. At a time when budgets are closely monitored, and the cost of healthcare continues to rise, any potential cost increases for an organisation could impact on service development. The focus of this organisational development project is to ensure those patients that require a sweat test will have access to the service promptly, restructuring the current service to meet these changing service demands.
2.5 Summary and Conclusion

This chapter reviewed literature on commissioning a specialist service, an adult sweat test clinic. Access to services and provision of quality care are important issues in any healthcare system. Long wait times may impact on a patients’ quality of life. As service requirements change, healthcare organisations must adapt, maximising the capacity within their organisations, allowing service users to access appropriate care when needed. The key to this is engagement and communication between all health care providers and the HSE, ensuring patient centred care is available to those for whom it is intended.

3.0 Organisational Development Process

3.1 Introduction

OD is directed at bringing about planned change to increase an organisation’s effectiveness (Cummings & Worley, 2014). Healthcare services undergo continuous change and transformation in response to the needs and expectations of service users, and legal obligations to meet standards of quality and care. Change is an adaptive process, and organisational change is also dependent on people changing (Improving our services: A user’s guide to managing change in the Health Service Executive, 2008). Making change happen can test a leader in terms of resolve, emotions and belief. As described by Kotter, leadership is about coping with change
(Kotter, 1999) and effective leadership facilitates change by supporting and motivating those most affected by the change to embrace it. This chapter will discuss the application of the HSE change model as a framework for the implementation of organisational change, an adult sweat test service.

Although barriers may stand in the way of inducing change in healthcare organisations, several factors can foster its continuation and help in making it succeed such as having strong leadership, concentrating on patient safety and focusing on improving the level of care (National Institute for Health and Clinical Excellence, 2007). For change to be successful takes time, and the planning and implementation of change is a key challenge for all leaders. Early research on the effectiveness of change showed that 50% of all efforts fail (Kotter, 1995). Recent studies claim the failure rate is closer to 75% (Erwin & Garman, 2010; Higgs & Rowland, 2000). The application of a practical change model along with effective leadership from those involved in the change can help in its success.

3.2 Critical review of approaches to organisational development

OD is described as a systematic application and transfer of behavioural science to the planned development and improvement of processes that lead to organisational effectiveness (Cummings & Worley, 2014). The OD approach is above all an approach that cares about people and has people within organisations at the centre of change (Senior & Swailes, 2010). As healthcare organisations are complex systems lasting and effective change can be difficult to achieve. OD operates at all
levels of an organisation and is a relatively long-term process. Change may take five to ten years to sink deeply into the culture of an organisation (Kotter, 1995), highlighting the complexity of any planned change.

Kurt Lewin is considered to be the founding father of OD (Burnes, 2004). Lewin’s three stage model for change is probably the most widely known change model (Cummings & Worley, 2014) and his work created the basis of the OD approach to change. The three phases are unfreezing, moving and refreezing. Unfreezing, the first phase, refers to disturbing the status quo to heighten people’s awareness of the need for change. The moving phase involves making the change that will move the organisation into a new state. Refreezing, the final phase of the process involves stabilising the changes. This model, while simplistic, may be criticised for the concept of refreezing, which implies that once a change is made it is held that way until there is a need to change again. In reality, modern organisations operate in a continuous cycle of change. Lewins three stage model has also be criticised as suitable only for small scale projects, ignoring organisational power and politics and being top-down driven. However, the three-stage model of change was part of Lewins broader work in helping to understand individual and group behaviour, and their role in organisations and society which is still relevant today (Burnes, 2004).

Lewins research on change, along with organisational studies by Coch and French (Coch & French, 1948) has also played an important role in understanding the organisational context of resistance to change, which will be discussed later in this chapter. Further OD models have since been described, one of which is the Cummings and Worley six phase model for change (Cummings & Worley, 2014).
approaches to change assume that groups are an essential element of a change process, oriented towards improving the organisation as a whole. OD can, therefore, be viewed as a process that facilitates change, helping an organisation move through the phases of change, taking the organisation from its current status to a new state.

Situations in which change arises vary in complexity. The terms ‘hard’ and ‘soft’ are used to describe these complex problems (Paton & McCalman, 2000). Change management involves soft issues such as culture, leadership and motivation. These elements are important to the success of planned change, but managing these aspects alone is not sufficient to implement transformation projects. Companies also need to consider the hard factors, like the time it takes to complete a change initiative and the number of people required to execute it (Sirkin, Keenan, & Jackson, 2005). Change in situations that show soft complexity, where issues are contentious and there is a high level of emotional involvement from those affected by the change, generally take longer than changes of hard complexity, based on a systematic approach to change (Senior & Swailes, 2010). A change model is a useful tool in helping to guide and understand the change process and change management. The implementation of an adult sweat test clinic can be described as a soft issue as it involves many different stakeholders from various departments within the organisation. As the sweat test is used in the diagnosis of CF, there is also a high level of emotional involvement from both clinicians and patients waiting on sweat test appointments. There is also a degree of emotional involvement from staff directly affected by the change who on one hand are aware of the benefits to patients
requiring access to a sweat test service, and on the other hand whose rosters are being directly affected by the introduction of a Friday morning clinic.

The Senior and Swailes model for OD recognises that some systems, including health care, require a soft systems approach to change (Senior & Swailes, 2010). It builds on the action research approach instigated by Lewin, recognising that change is not a one-off event and that all who are or who might be involved in any change are part of the decision-making process. This is in keeping with the work by Coch and French in which they demonstrated that the degree of staff participation in a planned change was inversely related to the level of resistance to that change (Coch & French, 1948). It does not assume that others will automatically accept a project implemented by senior managers in the organisation. Leading on from the concept of action research, it recognises the effect of an organisations internal and external factors in the success of an OD project. This model for change puts the change agent at the centre of the process, recognising the role of the facilitator when guiding an OD plan. Similar to the HSE change model, it emphasises the importance of the planning stage, ensuring sufficient data is gathered to understand and plan the change. Each of these OD models represents the reality of change in organisations. Change is a fluid, dynamic process and a planned change does not smoothly move from one step to the next.
3.3 Rationale for OD model selected

The HSE change model has been developed to promote a consistent approach to change, helping staff to improve services thereby improving the experience of service users (Improving our services: A user's guide to managing change in the Health Service Executive, 2008). The HSE change model is based on four phases of change, initiation, planning, implementation and mainstreaming. Similar to the NHS model for change (NHS, 2013), the HSE change model places particular emphasis on the people and cultural aspects of change. This model is more flexible than the step by step guide of linear models for change, such as Kotter’s eight step change model. Kotter’s model, when first published in 1995 (Kotter, 1995), differed from other models of change management in that it was not evidence-based and did not reference any outside sources (Appelbaum, Habashy, Malo, & Shafiq, 2012). The HSE change model recognises that change is a constant state of flux, and each of the four phases is linked to the other, reflecting the complexity of the healthcare service as a whole. This model also recognises the important role of people both in the change process itself and in sustaining change, with a focus on encouraging communication, support and development.

As discussed in chapter two, engagement levels within the healthcare service were measured in a 2014 HSE staff survey (Ipsos MRBI, 2015). Many factors could be considered to affect current sentiment within healthcare. At an organisational wide level recruitment embargos, staff shortages and increasing activity all impact on the staff morale. Within the laboratory, implementation of the 8 am to 8 pm extended working day, the discussion around hot and cold laboratories, and the introduction of
blood sciences core laboratories has created uncertainty. With employees being exposed to ever increasing changes, it is important that any planned change introduced would be done in a manner that minimises anxiety for all those affected by it. The HSE model places a strong focus on the people aspects of change, of which, as previously mentioned there are many examples in this OD process.

The vision of the HSE is that everybody will have access to high-quality care and services (Health Service Executive, 2015b) which underpins the HSE change model. As the focus of this OD project is the introduction of a sweat test clinic for adults, which is essentially about providing access to services in an acute hospital, the HSE change model has been selected as a framework to guide the change. The user guide is based on a comprehensive literature review of best practice and organisational experience of what works (Improving our services: A user’s guide to managing change in the Health Service Executive, 2008) also recognising the role of leadership in guiding change and the influence leaders have on the success of OD.

3.4 HSE change model

3.4.1 Initiation

The purpose of the early preparation and scoping stage is to create readiness and a considered case for change, to establish a sense of shared responsibility, and to scope out a solid foundation for successful change (Improving our services: A user’s guide to managing change in the Health Service Executive, 2008). The initiation
phase of the model (figure 1) involves outlining the objectives of the change proposal. The need for change is identified and the organisations readiness for change is assessed. The catalyst for this OD process was an increase in the demand for adult sweat test appointments. Referral letters were sent to the Laboratory as the organisation was already a designated centre for CF new-born screening. As the Laboratory had received these referrals, there was a responsibility to respond to the requests. A decision was made to initiate development of an adult sweat test clinic and the change agent was given the task of leading the project. Support was required from the Consultant Chemical Pathologist, the Chief Medical Scientist in Clinical Chemistry and the Laboratory Manager to ensure the initiative would gain the required momentum to proceed. The referral requests were then placed on the organisations waiting list management system until the clinic was implemented. Ethical approval was sought from the organisations ethics committee at this stage.

Figure 1: HSE change model
A SWOT analysis (Appendix 1) was performed and key stakeholders (Appendix 2) were identified to ensure the change would be communicated to all those affected by it. A force field analysis was completed (Appendix 3) to identify the forces impacting on the proposed change. The focus on identifying key stakeholders is essential as particularly in healthcare; no service operates in isolation and change in one part of the organisation can impact in different ways and at different levels (Improving our services: A user’s guide to managing change in the Health Service Executive, 2008). Mapping out key individuals at this early stage can help identify areas of concern for all groups. Once key stakeholders were identified, the organisation’s readiness for change was then determined and the planned OD project was communicated to all in formal and informal face to face meetings. Concerns regarding the proposed change and any potential resistance was acknowledged. While resistance was low at this stage of the change initiative, it will be discussed further during the implementation phase, as due to unexpected factors resistance arose later in the project. This highlighted the importance of communication in a change project and the role of the change agent in communicating to all stakeholders, which as discussed in the reflective piece cannot be over-emphasised when carrying out an OD project. Change agents may contribute to the occurrence of resistance by ineffective communication (Ford, Ford, & D’Amelio, 2008; Kotter, 1995).

Organisational politics was also considered at this stage of the change process. Political astuteness, defined in the NHS Leadership Framework as being able to interpret the likely changes in the health service and beyond (NHS Leadership Qualities Framework, 2002) is a key element of leading change in any organisation.
The need for change facilitators to be politically astute is also recognised in the Irish health system. Support from formal hierarchical organisational structures may not ensure the success of the change (McAuliffe & VanVaerenbergh, 2006). Politically astute change facilitators’ work to build commitment by establishing informal networks with those interested in the change succeeding. This then helps to reduce the effect of the resistant forces. The paediatric sweat test clinic is held in a designated room in the paediatric OPD. The analysis equipment for sweat chloride and conductivity is also kept in this room, enabling the medical scientist to carry out sweat collection and analysis in one setting. As this area was not suitable to run an adult clinic, an alternative location was sought. The adult OPD was not deemed suitable as space is an issue due to the number of clinics already running in the area. Enquiries were made into the possibility of obtaining a room one morning a week in the adult out-patient setting. Although there is an application process for requesting a room, due to the high volume of clinics applications may not be granted. At this stage, it was decided that the clinic would move to the endocrinology facility. Although this would mean the scientist performing the sweat test would need to move to the paediatric sweat test room to perform the analysis, it was felt that delaying the OD process to wait for a room closer to the current paediatric location would hinder the project. The Consultant Chemical Pathologist also ran a clinic in the Endocrinology Department on Friday mornings enabling the sweat test clinic to have appropriate consultant cover. As the patients had been placed on the hospital waiting list, any delay in implementing the sweat test clinic would increase the waiting time which could ultimately have financial implications for the organisation (Health Service Executive, 2013). The potential financial impact of the waiting lists was only realised later in the change project, and again highlighted the importance of
communication at all levels within an organisation. This OD project was the first time the Clinical Chemistry Laboratory was involved with waiting list management, and as such was the first exposure to potential fines for patients exceeding HSE wait times. The learning from this is further discussed in the reflective pieces.

The need for additional resources, other than an alternative location for the adult clinic, was considered but not required. The would be no net increase in sweat test clinics as the adult clinics would be held on alternate Fridays and the paediatric clinic would be reduced to every second Tuesday. This was agreed with the Consultant Chemical Pathologist and Chief Medical Scientist, with any potential increase in the paediatric requests being monitored to ensure that clinic was not negatively impacted by the change. It was agreed that the impact of a Friday morning clinic on the laboratory would be monitored and discussed should any issues arise.

3.4.1.2 Leading change

Change, by definition, requires creating a new system, which in turns demands leadership for guidance (Kotter, 1999). The initiation phase of the HSE change model focuses on identifying leadership roles and responsibilities to guide the change. The style of leadership surrounding the change can influence the success of the OD project. Leadership is associated with setting direction, aligning people and coping with rapid changes. One function of a leader during change is to concentrate on relationships within the organisation that will help them to cope with chaotic change (Improving our services: A user’s guide to managing change in the Health
Service Executive, 2008). Strong leadership can foster an environment that is conducive to change, motivating staff with a desire for continuous improvement (National Institute for Health and Clinical Excellence, 2007). Communication is an important aspect of any change project and ultimately it is the responsibility of the change agent or leader of the change to ensure open and effective communication at all stages of an OD process (Armenakis & Harris, 2009; Coch & French, 1948; Kotter, 1995).

Just as there are many different approaches to change, there are equally different styles for leading change. Rather than one leadership style being effective for change to succeed, perhaps more important is the substance, the core behaviour of the leader (Kotter, 1999). Change processes often involve turmoil and for those directly affected by the change looking for reassurance from an authentic leader may be the stabilising factor that is required to ensure the success of the change. Clear vision, strategy and direction are all required by leaders and the key to effective leadership is having the awareness to communicate these, engaging followers in the change process. Leading change is a complex process and the skill may not always to be a transformational leader (Senior & Swailes, 2010) but to use ones’ emotional intelligence (EQ) for assessing each situation. Self-awareness as a leader and change agent is important when progressing an OD project, particularly where there is involvement from numerous levels and departments within an organisation. Historically healthcare organisations and departments worked in silos and as this is changing in favour of a partnership and team working approach, leaders must be aware of potential issues that may arise. Necessary supports may be required for those going through the change process. Where there is cross-departmental
participation within a change project, leaders should also be aware of the cultural aspects of change and their impact on the success of the change. To sustain change over the long-term the cultural and the people aspects of change must be addressed (Schein, 1984). This includes addressing deeply embedded traditions and practices through an inclusive partnership process (Improving our services: A user’s guide to managing change in the Health Service Executive, 2008).

Goleman, who examined the relationship between EQ and effective leadership, discovered that EQ is necessary for effective leadership (Goleman, 2011). Just as leadership and leading change is a continual learning process, so too the skills of EQ can be developed over time. Effective leaders take responsibility for decision making and communication (Drucker, 2011). This is an important element to the change process as leadership also requires taking ownership and responsibility during difficult times of change. The theory of ethical leadership argues that we need to highlight the importance of promoting the ethical dimension of change as a means of ensuring that leaders and their followers act in the interests of the many rather than the few (By, Burnes, & Oswick, 2012). Decisions must also be made throughout the change process to ensure the change moves in the right direction. These decisions may impact those affected by the change. However, they should be made by leaders whose moral compass is aligned with that of the organisation. Ethical leaders are characterised as having high levels of integrity, setting ethical standards, making ethical decisions, and being caring (Cheng, Chang, Kuo, & Cheung, 2014).
3.4.2 Planning

The second step of the HSE change model is the planning phase. This emphasises building commitment, determining the detail of the change and developing an implementation plan. The purpose of this step is to increase further commitment for the change across the system while building a shared sense of the vision for change and engaging in activities that increase readiness and capacity to embrace new requirements (Improving our services: A user’s guide to managing change in the Health Service Executive, 2008). As previously discussed, an understanding of the culture of an organisation is critical to the success of a change project. The culture within the Laboratory would be one of continuous quality improvement. Working group recommendations, development of new diagnostic tests and best practise guidelines ensure that the Laboratory is continuously changing and improving to meet quality requirements. This is reflected in the culture of the wider organisation which has always been viewed as a learning organisation. This culture has influenced the implementation of this change initiative. As staff within the Laboratory were aware of the significance of a CF diagnosis, the need for the change initiative was clear which also aided in building a commitment to change. The benefit of the clinic was further demonstrated when two previously undiagnosed adult patients had positive sweat tests, indicative of CF, heightening employee commitment.

The importance of effective communication is again mentioned in step 2 of the change model. Key stakeholders should be continuously informed of updates and progress. The value of continuous communication cannot be overstated and as discussed in the reflective pieces was one of the poignant discoveries throughout the
change project. During the planning phase of the project, the proposed implementation plan was discussed with the Chief Medical Scientist and Consultant Chemical Pathologist. It had been proposed that the adult waiting list would be validated at this stage to ensure that all patients on the list still required an appointment. At the planning phase of the project, 33 adults were waiting on a sweat test appointment. As the contact details for every patient were not given on the referral forms it was not possible to contact each patient. The paediatric clinic had been reduced to every second Tuesday at this stage in anticipation of the adult Friday clinics being implemented. The clerical officers in the Clinical Chemistry Department were responsible for scheduling the paediatric sweat test appointments and it was envisaged that they would schedule the adult appointments also. This involved additional training in waiting list management on the hospital PIMS.

Communication was also required with the hospital PIMS administrator to ensure adult appointments could be recorded on the system. A template for adult sweat tests was drawn up by the clerical officer in conjunction with the change agent, and appointment dates were identified and scheduled. Training of clerical staff will be further discussed in the evaluation phase of the change as it was one of the objectives of the project.

Establishing clear communication pathways and trust between healthcare providers is fundamental when carrying out an OD process. Trust drives sustainable engagement and engagement drives business performance (Wright, 2015). Communication had been initiated with an external hospital regarding their requests for sweat tests during the change project. Patients from an external hospital had been placed on the organisations waiting list where the sweat test was to be
performed. Difficulties establishing effective communication with the external hospital resulted in patient waiting times coming close to the threshold allowed. As these patients had CF, they required grouping at clinic based on the micro-organisms they carry. This had been discussed with the external hospital during the initiation phase of the project. It was important to establish clear lines of communication at this stage to ensure the CF patients were grouped correctly.

3.4.3 Implementation

The implementation phase of the HSE change model focuses on implementing and monitoring the intended change to ensure it is meeting its purpose (Improving our services: A user’s guide to managing change in the Health Service Executive, 2008). Changes in structure, work processes and approaches to service delivery should be evident during this phase. The role of the change agent at implementation is to build upon partnerships already developed to ensure the change will have long-term sustainability. Any challenges encountered are acknowledged and resolved. As many issues and the impact of the change may only become evident during implementation, the role of a leader in guiding change can be described as not necessarily having the ability to foresee every problem, but to have the ability to deal with issues as they arise. Acknowledging the personal challenges associated with change may help in gaining support from staff as they work through the change.
3.4.3.1 Workforce Planning

Staff engagement is required for workforce planning. Workforce planning describes the process of determining the right number, mix and distribution of the skills, competencies and capabilities for an organisation to deliver evidence-based healthcare (Department of Health and Children, 2009). Workforce planning, if performed as intended, will play a major role in ensuring the services provided are as effective and safe as is possible. It assists organisations in planning for their current and future staffing needs (Department of Health and Children, 2009). While the focus should be on ensuring high-quality care and outcomes for the patient’s undergoing treatment, for the service to be sustainable there is an onus on professionals within the organisation to ensure maximum efficiency, creating the most effective use of the highly skilled personnel. Workforce planning has to target a long enough time horizon if it is to be useful and applicable and has to be done pre-emptively (Lopes, Almeida, & Almada-Lobo, 2015).

Workforce planning had been considered at the initiation phase of this OD process and had been mentioned when reviewing the literature. However, as the total clinic numbers were not increasing there was no net increase in demand for medical scientists to perform the sweat testing. Due to unforeseen circumstances, the implementation phase of the project coincided with a reduction in staff numbers on the rota from eight to five. The adult clinic was implemented at a time of flux within the clinical chemistry Department as the Department had also been reduced by four whole time equivalents (wte’s). The Department operates an 8 am to 8 pm routine service, and also provides a 24/7 emergency on-call service. Reduction in staff
numbers placed additional pressures on staff maintaining the rotas. These factors contributed to resistance to the introduction of the clinic at the implementation phase.

3.4.3.2 Resistance

The role of a leader during change is to work on reducing the resistance by recognising the barriers and concerns to the change. The relationship between leader and follower can be enhanced by establishing communication and a willingness to listen to concerns. Potential resistance may be reduced by creating a culture of readiness for change. Resistance can be a valuable resource in accomplishing change (Ford & Ford, 2010) and should be viewed positively. It is a form of feedback and can be used constructively to enhance the change process (Senior & Swailes, 2010). Responding negatively to resistance can cost good will and valuable relationships as well as the opportunity to learn how to improve change implementation (Ford & Ford, 2010). Research by Coch and French and Kurt Lewin found that resistance did not come from an individual level but rather was as a result of the organisational context in which the change occurred (Burnes, 2004; Coch & French, 1948). The resistance described in this change project can be viewed as coming from an organisational context. Changes in roster numbers resulted in increased demand on staff available. Change can create anxiety and leaders must be aware of recognising these symptoms as the occur. EQ and leadership, as previously discussed, are important in responding to and reducing resistance (Appelbaum, Degbe, MacDonald, & Nguyen-Quang, 2015; Appelbaum, Degbe, MacDonald, & NGUYEN-QUANG, 2015; Ford et al., 2008).
3.4.4 Mainstreaming

The purpose of mainstreaming is to focus attention on the success of the change effort and on integrating and sustaining the new ways of working and behaving (Improving our services: A user’s guide to managing change in the Health Service Executive, 2008). The mainstreaming phase also looks at evaluation and ways of improving the new service. The adult sweat test clinic was successfully implemented in the Department. The appointment service was delivered by the laboratory clerical officers in conjunction with the paediatric clinic. The evaluation of this OD project will be discussed in detail in chapter four. It is important that the role and support of stakeholders and those who helped in achieving the aim of the change are acknowledged at this stage. Without involvement from others, true change may not take place. Building strong collaborative relationships with key stakeholders including continuous consultation and participation resulted in ownership, partnership and commitment to the change. Acknowledging the success and achievement of staff involved in the change creates a positive working environment and readiness for the next challenge. Communication and leadership should not be forgotten at this stage as new relationships can be strengthened and the new way of doing things becomes embedded into routine practice.
3.5 Summary and conclusion

Chapter three discussed the implementation of a planned OD project using the HSE change model as a framework to guide the change. It facilitated delivery of the aim of the project, the introduction of an adult sweat test clinic. It demonstrates the usefulness of a dedicated change model when introducing a change initiative, emphasising the importance of the initiation and planning stages. A structured model when implementing change highlights important factors influencing successful change such as organisational culture, communication, resistance, and leadership.

4.0 Evaluation

4.1 Introduction

Evaluation is one of the ways in which an organisation can learn (Improving our services: A user’s guide to managing change in the Health Service Executive, 2008). Flexibility and openness to change are crucial in healthcare, enabling organisations to learn and be responsive to communities and service users, making change part of the normal way of doing business. It is important to use evaluation models to identify improvements that work well before their wide-spread replication (Parry, Carson-Stevens, Luff, McPherson, & Goldmann, 2013). Evaluation should be built into any change initiative as it provides feedback for all those involved in the change. Because improvement initiatives are complex and context sensitive, fixed-protocol
randomized controlled trials (the gold standard for evidence-based medicine) are not well suited for the evaluation of improvement initiatives (Parry et al., 2013). This chapter discusses the importance of evaluation in healthcare. It also examines evaluation in relation to the aims and specific, measurable, achievable, realistic and time-bound (SMART) objectives stated in chapter one of the OD project using the context, input, process, and product (CIPP) model as the evaluation tool. Setting SMART objectives at the outset is important as the information gathered from the objectives can form the case for change (Improving our services: A user’s guide to managing change in the Health Service Executive, 2008).

4.2 Significance of Healthcare Evaluation

Evaluation is a key component of healthcare. Managers and policy makers must ensure resources are used to their best effect and answer questions as to why particular decisions have been made on the public’s behalf (Øvretveit, 2002). Questions may be why a screening programme has been aimed at a particular gender or age group, or why funding has not been made available to a particular group of patients. In relation to CF, these questions have been asked concerning funding for the drug Ivacaftor (“New cystic fibrosis drug ivacaftor (Kalydeco) to be made available for Irish patients | Department of Health,” 2013), and are being put forward as a newer drug, Orkambi, becomes available. With limited resources, healthcare decision makers are being forced to do more with less. Evaluation of quality programmes is an important step in determining the effectiveness of an intervention. Øvretveit and Gustafson argue that large-scale national quality
initiatives are resource heavy, and very often the effectiveness of such programmes is not researched or evaluated correctly (Øvretveit & Gustafson, 2003). They suggest that such research is not undertaken due to the large scale complex nature of healthcare systems, however, similar to the HSE change model, they emphasise that this research is beneficial in identifying factors for successful implementation.

The World Health Organisation (WHO) European working group on Health promotion evaluation has defined evaluation as “the systematic examination and assessment of the features of an initiative and its effects, in order to produce information that can be used by those who have an interest in its improvement or effectiveness” (World Health Organisation, 1998 p3). Patient care and quality are at the heart of the HSE, and evaluating quality initiatives is important to ensure appropriate standards are maintained and outcomes achieved. Evaluation and learning have been incorporated into the mainstreaming step of the HSE change model. The purpose of this step is to put in place ways to evaluate how the change process was designed and implemented. The focus is on improving an organisation’s readiness to engage in future change and to discontinue any activity that no longer serves the needs of the new organisational reality (Improving our services: A user's guide to managing change in the Health Service Executive, 2008).
4.3 Evaluation

4.3.1 Aims

The aim of this OD project was to introduce an adult sweat test clinic in a DATH. The degree to which this aim was achieved was determined by evaluating the objectives set out in chapter one. The project was evaluated using the CIPP model (figure 2), with quantitative measures of evaluation used where appropriate. The CIPP evaluation model was originally developed by Daniel Stufflebeam in the 1970’s to provide timely information in a systematic way for decision making (Stufflebeam, 1971). Stufflebeam’s CIPP evaluation model is a framework for conducting formative and summative evaluations of projects, personnel, products, organisations and evaluation systems (Stufflebeam & Shinkfield, 2007). It is an improvement model designed to systematically guide both evaluators and stakeholders in posing relevant questions and conducting assessments. This is done at the beginning of a project (context and input evaluation), while it is in progress (input and process evaluation), and at the end of the project (product evaluation) (Zhang et al., 2011). Evaluation of the change using the CIPP model is discussed in the methods and measures and results sections.
4.3.2 Methods and Measures

Context

The rationale and triggers for change are at the core of context evaluation. The objective of this stage is to assess the overall environmental readiness of the change and to assess whether existing goals and priorities are attuned to needs (Stufflebeam, 2003). The rationale and triggers for this OD project were described in chapters one and three with the context of the change established during the initiation phase of the HSE change model. A driving force or trigger for this change
was an increase in the demand for adult sweat test services. The demand arose from two avenues. Adult patients receiving the CF drug Ivacaftor require an annual sweat test to determine the effectiveness of the drug, and reported increases in the number of mild cases of CF diagnosed in adults (Farrell et al., 2008) led to an increase in the number of referrals from respiratory consultants. This highlighted the importance of access to services, identified as a theme in the literature review. Adult CF centres would previously have had no requirement to perform a sweat test as patients attending the CF clinics would have been diagnosed as children. They may not have access to the appropriate equipment or required training. A medical scientist performs the sweat test procedure and analysis facilitating same day TAT for results, which had been agreed at a national level by the CF newborn screening programme. Due to the increase adult referrals and in discussion with the paediatric CF Department a separate location was sought for the adult clinic.

**Inputs**

During input evaluation experts, evaluators and stakeholders identify potentially relevant approaches (Zhang et al., 2011). The input evaluation asks “How should it be done?” and identifies strategies that are most likely to achieve the desired outcome. The result of the input evaluation was a project designed to meet the identified needs. This was done by critically examining all relevant approaches and recommending alternative designs. The literature review outlined in chapter two was one tool used to identify and assess approaches to the change. The implementation plan (Table 1), required as part of the HSE change model, was also an important
step in the input evaluation as it focused on how best to bring about the proposed change.

Table 1: Implementation plan

- Perform a literature review
- Draw up an implementation plan (GANNT chart)
- Perform a SWOT analysis
- Perform a stakeholder analysis

Alternative approaches to this OD project were considered at the initiation phase. The current procedure in the organisation was for the sweat stimulation and analysis to be performed by a trained medical scientist in the Paediatric OPD. All equipment required was located in the sweat test room. This allowed for the collection and analysis to occur in tandem, facilitating the stated TAT of results. As the paediatric setting was not suitable for adult patients’ consideration was given to the sweat stimulation procedure being performed off-site where possible. The sweat test within the organisation has, since September 2015, achieved Irish National Accreditation Board (INAB) accreditation to ISO 15189:2012, the International Organisation for Standardisation standard for medical laboratories. Splitting the sweat test procedure across sites would result in unknown pre-analytical variables that could potentially impact on the sweat test results. This approach would have not previously been
undertaken by the Laboratory and as such was deemed to be high-risk regarding potential for error and impacting an already standardised procedure. Current guidelines for sweat testing advise that staff performing sweat tests must perform a minimum number of sweat tests per annum to maintain competency (Guidelines for the Performance of the Sweat Test for the Investigation of Cystic Fibrosis in the UK 2nd version, 2014). If the stimulation part of the procedure were split across an increased number of centres, it would be unlikely that this minimum number would be achieved. Maintaining the current procedure was in keeping with guideline recommendations (Guidelines for the Performance of the Sweat Test for the Investigation of Cystic Fibrosis in the UK 2nd version, 2014), which is a focus of the input evaluation.

The volume of sweat collected is checked by the medical scientist before the patient leaves the clinic. In cases where insufficient sweat has been collected, a second stimulation would be performed on the same day, thus reducing the callback rate for patients. Transporting such small volume biological samples was also considered if it was decided that the stimulation procedure would take place in an external hospital. Upon review of both the potential pre-analytical issues with the alternative proposal and the referrals received it was decided that the current procedure for sweat test appointments in the organisation should be followed. As the adult referrals had come from nationwide locations, it would not be feasible to implement the sweat collection protocol in all locations. This decision was undertaken in consultation with the Clinical Chemistry Consultant Pathologist, the Clinical Chemistry Chief Medical Scientist and the change agent.
Process

The process evaluation stage of the CIPP model allows for evaluation with regard to the project, assessing the extent to which it is being carried out appropriately (Zhang et al., 2011). Continual evaluation is also supported and recommended with the HSE change model, ensuring the change undertaken was achieved. Process evaluation may also identify unintended outcomes as a result of the change. It involves the actual assessment of the implementation of the change (Frye & Hemmer, 2012). This section of the evaluation looks at how the change was implemented compared to the plan. It focuses on the problems encountered during the implementation. The HSE change model in effect guides the process evaluation step as it encourages ongoing assessment of the project, as discussed in the evaluation of objective one where the capacity of the adult clinics was reviewed and increased. The process of implementing the change was discussed in detail in chapter three and learnings from the process will be further developed in the final chapter.

Products

Product evaluation identifies and assesses the outcome of the change to determine whether it achieved what it set out to do (Zhang et al., 2011). It is possible that poor implementation may cause poor or unintended outcomes (Frye & Hemmer, 2012). The SMART objectives set out in chapter one will be evaluated in the results section to inform the final part of the CIPP evaluation, the product component. Assessment
of the achievement of stated objectives is one method of carrying out a product evaluation (Frye & Hemmer, 2012).

4.3.3 Results

**Objective 1: A review of adult sweat test requests and current paediatric appointments to be conducted by 25th October 2015.**

A review of all sweat test requests was performed before the introduction of the adult service. This review was used to determine if any additional resources would be required, and also to review the number of appointments requested for patients already diagnosed with CF. As discussed in chapter one, CF patients have additional infection control and health and safety requirements when attending clinics. This review identified the weekly paediatric sweat test clinic as having the potential to move to every second week, as the weekly clinics were not being filled and there was no waiting list for paediatric sweat test appointments. A meeting was held with the Chief Medical Scientist, Consultant Chemical Pathologist, a Senior Medical Scientist taking over responsibility for the sweat test service and the change agent. It was decided that the paediatric Tuesday clinic would be reduced to every second Tuesday, allowing the adult clinics to be delivered on alternate Fridays. The clerical officers involved in scheduling the appointments were informed of the change. The appointment list was monitored to ensure the change did not impact negatively on the paediatric service.
It was initially hoped that the adult waiting list would be validated to confirm the number of adult appointments required. However, not all referral letters contained patient contact details. It was decided instead that appointments would be sent to all patients, with the laboratory contact details on the letter should the appointment not be required. As of March 21st 2016, 2 out of the 33 adult appointments had been cancelled, a 6% reduction in demand. When further investigated, one patient had a sweat test performed in a hospital outside the region. The patient was living closer to the hospital in which the sweat test was performed, and the hospital also provides adult CF services. The second cancellation was no longer deemed necessary by the requesting consultant. The number of adult patients attending each clinic was initially set at three, as with the paediatric clinic. However, upon a review after the completion of two adult clinics, it was felt that the adult patients would produce sweat quicker than children and so would require fewer repeat stimulations. The number of adult appointments was then set at four for each clinic. Increasing capacity by 30% at each clinic would also reduce the wait time for appointments.

Objective 2: By 20th January 2016, 100% of appropriate clerical staff would be trained on the hospital patient management system (PIMS), used for appointment management.

Training for clerical staff using PIMS was carried out during the planning phase of the project. During the initiation stage, the rostering system for clerical staff in pathology underwent a change. A rotational system meant that additional clerical staff would require training for appointment management on PIMS. Prior to this the
sweat test appointment service was overseen by one clerical officer. The training requirements were discussed and agreed with the laboratory administrator to ensure the clerical officers would receive sufficient training and be competent in booking appointments. It was decided that the level 7 clerical officer in Clinical Chemistry would attend the training and would then be responsible for training the level 6 clerical staff as they rotated into the Clinical Chemistry office. Once the training needs were identified, the PIMS administrator within the organisation was contacted to arrange a training seminar. A mandatory programme on the use of PIMS had been attended by all clerical staff and was delivered as part of the organisation's centre for learning and development education programmes. These programmes are revised annually to align with the training needs of the organisation. A prospectus is published each year detailing the programmes available to staff, which may be compulsory or optional courses, based on requirements. The PIMS administrator delivered a course on waiting list management and appointment scheduling to the level 8 clerical officer. This information then fed into the updated standard operating procedure (SOP) for sweat test appointments. The SOP was updated by the author in consultation with the clerical officers to reflect the adult and paediatric sweat test booking procedure, ensuring a standardised procedure existed for booking sweat test appointments. As the clerical officers rotated into the Clinical Chemistry Department they read and signed the SOP to demonstrate they understood the procedure. Operator competence for booking appointments was demonstrated as the ability to book a patient appointment.

As the adult clinic had not previously existed, there was no template for the clinic present on PIMS. It became apparent that the clinic templates on PIMS would
require updating to enable the scheduling of adult and paediatric appointments. A meeting was held with the PIMS administrator, the clerical officer, and the change agent to agree the format of a new booking system. This would allow both the adult and paediatric clinics to be identified on the system and also feeds into the hospital management system for waiting lists. Once the clinic templates were activated, and the training had been delivered, the clerical officer was capable of placing patients on the appropriate waiting list once the referral was received, before booking them into a selected date for the sweat test appointment.

**Objective 3: Activity-based funding for each sweat test would be calculated by 14th March 2016.**

This task was completed by March 7th 2016 (Appendix 4) with the intention of a service level agreement being set up with external organisations availing of the adult service. This was outside the scope of the current OD project, but will be discussed in chapter five in relation to recommendations from the change project. Based on the review of services performed in objective 1, the implementation of an adult clinic on alternate Fridays was deemed cost neutral as the paediatric clinic had also been reduced. If demand for the clinic increased or if there was an increase in the demand for paediatric appointments requiring the reintroduction of weekly paediatric clinics, the service would need to be reviewed again to determine the cost of increasing demands. Access to services was discussed in relation to the literature review in chapter two, and with increasing demands across healthcare, service requirements are increasing. The ABF for the sweat test service will be available to the HSE as
providers become funded for the activity within their organisations (Health Service Executive, 2015a).

**Objective 4: From 28th March 2016, an appointment wait time of eight weeks for all adult sweat test appointments would be achieved.**

At the implementation stage of the project, 32 adults were on the waiting list awaiting appointments. During this stage, a further three adult referrals were received. Two appointments were cancelled leaving a total of 33 adult patients on the waiting list. Appointments were scheduled on appointment booking sheets devised by the clerical staff in clinical chemistry. The appointment letters were then sent to patients six weeks before their scheduled appointment. 11 of the patients were CF patients, and as discussed in chapter three, communication was required with the external referring organisation to ensure these patients were appropriately managed. A delay in receiving communication from the referral site meant that these patients remained on the waiting list. As these patients had CF, the plan was to cohort them based on information provided by the referring hospital. This would allow the four appointment slots to be filled efficiently. Without this information, the patients would have to be given individual appointments, allowing only one patient to be seen at each clinic. This would impact on the overall delivery of the service and would also impact on the appointment waiting time for other patients. A CF nurse from the referral site contact the Department in the middle of March, and the cohort information was provided. By the end of March 2016, during the project evaluation stage, 14 adult sweat tests had been performed with two positive patients identified within this 14 (Figure 3). A
further 19 patients were scheduled, with appointments planned up to 26\textsuperscript{th} August 2016. Many of the later appointments had one or two patients scheduled. These consisted of the CF patients from the external referral centre. The next available appointment for non-CF referrals received from March 28\textsuperscript{th} 2016 was 20\textsuperscript{th} May 2016, which was within the eight-week target set in objective 4. The waiting list for adult sweat test appointments was also eliminated as new patients being referred could be given an immediate appointment.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{sweat_test_appointments.png}
\caption{Pie chart of adult sweat test appointments}
\end{figure}

\begin{itemize}
\item 1= Percentage of adults scheduled for appointments (n=19)
\item 2= Percentage of adult sweat tests performed (n=14)
\item 3= Percentage positive patients (n=2) from number of adult sweat tests performed (n=14)
\end{itemize}
4.3.4 Dissemination Plan

As discussed in chapter three a reduction in staff numbers maintaining the sweat test rota has placed increased pressure on the service as a whole. An increase in the number of patients eligible for Ivacaftor and the impending release of Orkambi would also place additional demands on the service. Post implementation of the adult sweat test service it was proposed that a review of the current service would take place to estimate future staffing requirements based on current and projected activity. The change agent, in consultation with the business manager of the Paediatric Directorate within the organisation and the Consultant Chemical Pathologist, will carry out this review. The ABF used to calculate the cost of a sweat test appointment has been given to the finance department for verification with the intention that it may then be used to fund the service. The Clinical Director for Laboratory Medicine was informed of the clinic implementation by the change agent as any request for additional resources in the future resulting from an increase in clinic demand would require approval at the Directorate level.

Dissemination of the project is also important in terms of organisational learning and quality improvement. The evaluation step in the change process is central to this as it allows an organisation to understand the impact of an initiative in terms of the outcomes and products of change. Further dissemination will occur through the authors presentations at relevant conferences, and the final thesis will be made available to Royal College of Surgeons in Ireland (RCSI) epublications.
4.4 Summary and Conclusion

The aim of this OD project was to introduce an adult sweat test clinic supported by four key objectives. A trigger for the change was an increase in the number of adult referral letters requesting a sweat test. The purpose of this chapter was to discuss the importance of evaluation in healthcare initiatives and the evaluation processes undertaken to evidence achievement of the stated aims and objectives this OD change. The aim of the project has been achieved, with patients now able to attend for appointment within eight weeks of the referral letter being received and the elimination of the adult waiting list.

5.0 Discussion and Conclusions

5.1 Introduction

The process of OD is concerned with systems-wide learning and change. As discussed in the preceding chapters the aim of this project has been achieved guided by the HSE change model and evaluation of the process using the CIPP evaluation model. The following chapter will discuss the implications and impact of the project including the project’s strengths and weaknesses. This is an important step in any change process as it provides information for the stakeholders and management within the organisation and the individual leading the change.
Information and recommendations from this change may then be taken into consideration as new change projects are undertaken.

5.2 Project Impact

5.2.1 Stakeholders

The introduction of an adult sweat test service has given patients and consultants access to a diagnostic service previously not available in the region. As detailed in chapter two a large volume of literature exists in relation to access to services. One important consequence accessibility can have on a patient is an increase in anxiety and improving access can improve satisfaction rates (Carey et al., 2014). This is a critical consideration in particular when discussing access to a diagnostic service such as a sweat test. In addition to the two positive sweat tests that were reported it is important to recognise the impact on those patients previously on a waiting list for sweat test appointments. Due to the nature of the diagnostic test the Laboratory has always sought to keep wait times to a minimum. As the adult clinic was not previously available, 33 adult patients were awaiting appointments with no scheduling of dates possible. In this regard, it is important to recognise the role each of the stakeholders had in ensuring the clinic was successfully implemented.

The number of adults awaiting sweat tests during this project had not required additional resources. However, any increase in demands would need to be monitored to ensure the Department is capable of meeting them and to ensure the
service does not begin to increase in cost. This was important to convey to the Medical Scientists affected by the change. As previously discussed, a number of factors led to a reduction in staff performing the sweat tests. It is hoped that by the end of 2016 three additional scientists will be trained in the procedure, relieving current pressures on the rota.

The change process has also impacted the author. Putting theory into practice and applying the tools of organisational development in a practical setting has increased the authors understanding of their strengths and areas for improvement. Having an understanding of change, reactions to change and tools for overcoming barriers has in the authors opinion been an invaluable experience. The knowledge gained from the process is further expanded on in the reflective pieces documented throughout the change.

5.2.2 Practice

Having access to an adult sweat test clinic will now enable symptomatic patients to undergo appropriate testing. This will ensure that any patients identified as having a sweat chloride suggestive of CF receive the correct care. Confirmation of the diagnosis of CF is important as it enables access to CF centre-delivered care and CF-specific therapies (Simmonds, 2013). Optimum care for people with CF is defined by the European Consensus document (Kerem, Conway, Elborn, Heijerman, & Committee, 2005). Implementing the adult clinic also resulted in a review of the paediatric services, as outlined in the evaluation of objective 1. The demand for
clinics had reduced which enabled the adult clinic to run without an increase in staff resources required. This reduction in the paediatric service is in accordance with the literature which finds that improving access can be done by restructuring services (Berwick et al., 2008).

5.2.3 Theory

Before commencing the project, a literature review as detailed in chapter two, was performed to guide the change. The search highlighted some important themes, including governance and access to services. The information gathered throughout the review formed the basis for the project and identified important aspects in implementing the change. Applying the theory of organisational development itself has in the authors opinion helped in achieving the change. The change agent benefited from understanding the theory behind organisational change. Although having a high interest in the change, it was important also to listen to other people’s views and be inclusive during the process. As discussed in chapter three, change agents build resistance by not communicating enough. It is vital that the change agent can detach from emotive situations to build constructive discussions that will overcome barriers. The benefit of on-going communication with all stakeholders became evident as the change progressed as is discussed throughout the reflective pieces.

The development of an adult sweat test service required engagement and communication across a number of departments within the organisation as well as
with external organisations. As described by Coch and French, communication is the responsibility of the change agent when leading OD (Coch & French, 1948). The change agent is the driving force behind the project, and it is their responsibility to communicate the vision for the future state to all involved. Kotter reasons that under communicating the vision for change may impede a project’s success (Kotter, 1995). Communication and engagement were key aspects of this OD process, in particular with the external organisations as their input was required to schedule appointments. Although there was a delay in communication being established, it is hoped that the relationships formed as part of this process can be maintained and developed. It is the author’s experience that the degree to which a change initiative is achieved is dependent on the level of communication throughout the change, as evidenced in the literature (Armenakis & Harris, 2009; Coch & French, 1948).

5.3 Strengths of the project

One strength of the project was the development of an adult sweat test service, for which there was a demand. In the first weeks of the service being available, two patients had a sweat chloride result indicative of CF. As discussed during the literature review in chapter two access to diagnostics and healthcare services is important to ensure patients receive correct diagnoses and treatment. These patients have since been referred to adult CF treatment centres, the appropriate care pathway, where they will receive care and treatment specific to CF. Increasing the capacity at each adult clinic also improved the appointment wait time for patients. This increase had been suggested by another staff member once they had delivered
an adult clinic. This can be seen as the positive effect engagement, and participation has amongst staff and within departments. It is an important learning from this change project where engagement, as discussed in the reflective pieces and the literature review, is particularly important in healthcare.

Although it may also be considered a limitation, having a time-bound element to the change kept the momentum going to achieve the aim. Many change initiatives lose impetus, particularly where resistance or difficulties are encountered. In the author’s opinion, the time-bound element kept the project focused throughout and using the HSE change model gave structure to the project. The time-bound element forced the author to be clear with the aims and objectives at the initiation stage of the project. The initial proposal was wider reaching, however, to ensure the project was completed within the required time frame the scope of the project was reduced before the initiation stage. This is a learning that the author will take forward to other projects. Although some organisational projects cannot be scaled down, it is important to be realistic about what can be achieved with the time and resources available. This, in the author’s opinion, also helps with the culture of change and the openness of others to change. If initiatives are continually introduced but not completed, or where proposals lose momentum and are not clearly communicated, staff lose confidence in those promoting change and reluctance may develop.
5.4 Limitations of the project

The location of the adult sweat test clinic may be considered a limitation of the project. The analysis equipment is located in the paediatric sweat test room which enables the medical scientist to perform the sweat stimulation and analysis in the one location. The paediatric sweat test department may use the paediatric sweat test room on Fridays when it may also be required by the medical scientist to perform the sweat analysis. Currently, the scheduling officer in charge of the paediatric rooms is contacted by email to advise of the dates the room will be required. Up to the evaluation stage, there has not been a conflict with scheduling and the room has been available to the scientist to perform the analysis. Long-term, this solution is possibly not the most efficient way of operating as the senior medical scientist must remember to contact the paediatric scheduling officer to ensure the room will be available for the analysis of the sweat samples. This may be revisited by the change agent using experience and learning's from the project.

5.5 Recommendations

The sweat test remains the gold standard for the diagnosis of CF (Mattar, Leone, Rodrigues, & Adde, 2014). Historically, CF has been mainly confined to children. As the survival rate increases and milder forms of the disease are recognised the number of requests for adult sweat tests has been increasing (Woods, 2013). The quantitation of sweat chloride is the main diagnostic marker. Sweat sodium and conductivity may also be reported. In this organisation, sweat conductivity is reported
with the sweat chloride result. The reference intervals for each of these tests were generated from children, and the diagnostic classifications have been accepted independently of age. An unexpected outcome of the project was the wide variability in sweat conductivity ranges for adult patients, with many sweat conductivity values reading higher than would be expected. The sweat conductivity results in the adult patients tested did not always correlate to the sweat chloride result. A study to determine sweat conductivity ranges in asymptomatic adults might be considered to investigate whether the variation observed in the symptomatic adults tested so far is present in the adult population as a whole. The Laboratory is involved in student training and assisting students in completing a thesis as part of their undergraduate and postgraduate studies. As the organisation has links with an academic partner a project such as this may be undertaken by a student completing one of their programmes.

A second recommendation would be to develop service level agreements (SLA’s), where necessary, with the external organisations. Section 4.4.1 of ISO 15189:2012 states the requirements for a laboratory entering an agreement to provide a laboratory service (International Standard ISO 15189 Medical laboratories-Requirements for quality and competence, 2012). Service agreements are reviewed periodically and may include such detail as the approximate number of requests to be sent to the laboratory. The service agreement can benefit both the requesting organisation and the service provider as it allows for review should the terms of the agreement change. This will be important should the demand on the adult sweat test service increase. It will also provide a means of funding using the costs calculated as part of objective 4. A meeting has been held with the author, the Chief Medical
Scientist and the Consultant Chemical Pathologist to initiate the process of developing an SLA.

As with any quality initiative continuous review is essential to ensure objective and aims are being met. This initiative was developed due to increased demand for adult services. What is needed now may not be required in five years’ time. Monitoring demand and resource is therefore essential to ensure the clinic is being delivered in the most efficient and safe manner for patients. This will be reported on monthly through the Clinical Chemistry Operational Group meeting within the Laboratory.

5.6 Summary and Conclusion

OD recognises that change is an on-going process based on action research. Use of a structured model to guide change forces the change agent to continuously reflect and refer to evidence-based literature when implementing change. This is particularly relevant to a large healthcare organisation. While the project can be used to guide further initiatives, the theory behind it is also important to disseminate as a means of introducing successful change, demonstrating the importance of leadership when guiding change and the need for governance structures to ensure any initiative is for the good. The success of the change will be determined by the willingness of the department to carry it forward, integrating it into the routine operation of the organisation.
6.0 References


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*Ivacaftor (Kalydeco) Reimbursement Protocol*. (n.d.).


Appendix 1: SWOT analysis

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Paediatric clinic is currently in place</td>
<td>• An additional clinic may impact on current staff resources</td>
</tr>
<tr>
<td>• The laboratory has all the necessary equipment and trained and experienced staff</td>
<td>• Any increase in spending in providing the service may limit the capability to run the clinic</td>
</tr>
<tr>
<td>• The hospital is a referral centre for the newborn screening programme</td>
<td></td>
</tr>
<tr>
<td>Customers of the service may exceed the number of staff available</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The hospital could potentially become the regional referral centre for adult and paediatric appointments</td>
<td>• Another adult hospital may introduce the service</td>
</tr>
<tr>
<td>• Involvement in any future studies or trials for cystic fibrosis</td>
<td>• Lack of resources or a potential increase in spending by the laboratory in providing the service may prevent the clinic developing</td>
</tr>
<tr>
<td>• The cost of providing each appointment will be determined, providing the hospital with data for activity based funding</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 2: Stakeholder analysis

**Key Stakeholders:**

<table>
<thead>
<tr>
<th>Consultant Chemical Pathologist</th>
<th>Chief Medical Scientist Clinical Chemistry</th>
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</thead>
<tbody>
<tr>
<td>CF nurses</td>
<td>Laboratory Manager</td>
</tr>
<tr>
<td>Medical Scientists</td>
<td>Patients</td>
</tr>
<tr>
<td>Laboratory clerical staff</td>
<td>Endocrinology Department</td>
</tr>
<tr>
<td>Referring consultants</td>
<td>Paediatric CF consultant</td>
</tr>
</tbody>
</table>

**High influence/Low interest:**
- Endocrinology Department
- Paediatric CF consultant

**High influence/High interest:**
- Consultant Chemical Pathologist
- Chief Medical Scientist Clinical Chemistry

**Low influence/Low interest:**
- Laboratory Manager

**Low influence/High interest:**
- CF nurses
- Medical Scientists
- Laboratory clerical staff
- Patients
- Referring consultants
Appendix 3: Force Field Analysis

**Driving Forces**
- Adult waiting list
- Change agent
- Consultant Chemical
- Pathologist

**Change:**
- Adult
- Sweat
- Test Clinic

**Restraining Forces**
- Additional clerical work
- Potential increase in work for medical scientists if demand increases
- Potential increase in cost
Appendix 4: Activity based funding

<table>
<thead>
<tr>
<th>Expenditure</th>
<th>Hours per patient</th>
<th>Hours per week</th>
<th>Rate (ex PRSI)</th>
<th>PRSI (1.25%)</th>
<th>Cost Per Test</th>
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</thead>
<tbody>
<tr>
<td>Secretarial</td>
<td>5</td>
<td>28.6</td>
<td>143</td>
<td>1.25</td>
<td>178.75</td>
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<tr>
<td>Medical Scientist</td>
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<td>22.42</td>
<td>56.05</td>
<td>1.25</td>
<td>70.0625</td>
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<tr>
<td>Consultant cover</td>
<td>1</td>
<td>100</td>
<td>1.25</td>
<td></td>
<td>125</td>
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<tr>
<td>Senior Medical Scientist cover to maintain service</td>
<td>2</td>
<td>29.22</td>
<td>58.44</td>
<td>1.25</td>
<td>73.05</td>
</tr>
<tr>
<td>EQA/Service Contract/Electrodes (SET COST)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Consumables cost per test (ALLOW FOR INCREASES)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>120</td>
</tr>
<tr>
<td>Facilities management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Training and Support (2% of staff costs)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7.1498</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3.5</strong></td>
<td><strong>7</strong></td>
<td><strong>80.24</strong></td>
<td><strong>n/a</strong></td>
<td><strong>774.0123</strong></td>
</tr>
</tbody>
</table>

Clerical Officer Level VII taken from point 6 53545
Senior MS cover taken from midpoint in scale 59222
MS cover taken from midpoint in scale 43144
Include PRSI/pension 1.25%
Figures correct as of March 2016
Appendix 5: GANNT chart

GANNT chart for development of adult sweat test service using HSE change model:
Appendix 6: Poster

Introduction of an Adult Sweat Test Clinic in a DATHs

Student Number: 14122626
Caitriona Higgins MS0 Leadership 2014-2016

Introduction & Background

This organisational development (OD) project was introduced in a large academic teaching hospital. The organisation is a referral centre for the Cystic Fibrosis (CF) neu born screening programme. Sweat testing is used in the investigation of CF, traditionally diagnosed in childhood. The introduction of the Health Service Executive (HSE) Invacare (Vail-deco2) reimbursement protocol for 65110 CF patients and the recognition of milder CF phenotypes in adults has increased demand for adult sweat test services. Patients eligible for Invacare are required to have an annual sweat test. Prior to implementing the clinic referral letters for 33 adults patients from nationwide locations had been received by the Clinical Chemistry Department. These patients required access to a sweat test clinic.

Aims & Objectives

Aims: To introduce an adult sweat test clinic.

Objectives:
1. Conduct a review of adult sweat test requests and current paediatric appointments by 26th October 2015.
2. By 20th January 2016, all clinical staff would be trained on the hospital patient information system (PHIS).
3. Activity-based funding for each sweat test would be calculated by 14th March 2016.
4. From 20th March 2016, a wait time of eight weeks for all adult sweat test appointments would be achieved.

Methodology

The HSE change model was used as a framework to guide the change.

Figure 1: HSE Change Model

Initiation

A SMART (strengths, weaknesses, opportunities, threats), stakeholder and force field analysis was performed. Barriers to implementation and potential resistance were identified. Review of the paediatric clinics was carried out to determine if additional resources were required.

Implementation

Implementation plan developed. Clinic dates were scheduled. Clinic templates agreed on iPMs, the inpatient management system for appointments. Training of clinical staff undertaken. Activity based funding (ABF) was calculated for a sweat test. There was a focus on building commitment and engaging with stakeholders.

Evaluation

Stufflebeam’s Context-Input-Process and Product (CIPP) model was used to evaluate the change. Two previously undiagnosed patients had Choride results indicative of CF.

Organisational Impact

The introduction of the adult sweat test clinic has given clinicians access to a diagnostic service for symptomatic patients previously not available.

The waiting list for adult appointments has been eliminated.

Conclusion

The adult sweat test clinic was implemented guided by the HSE change model. Demand for the clinic will be monitored to ensure resources are effectively utilised should demand increase or decrease. The wait time of eight weeks for all appointments will be audited by the laboratory.

References