Situation Background Assessment Recommendations (SBAR) Position Paper

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Situation

Laboratory services underpin modern healthcare and are a key enabler to the effective delivery of the National Clinical Strategy (2014-20)

Laboratory services underpin modern health care. It is estimated that 70% to 80% of clinical medicine decision making is predicated upon, or confirmed by, or documented by medical laboratory test results. Efficient and effective delivery and application of laboratory testing, combined with equitable access to affordable state of the art services, are essential for delivery of good patient outcomes across Scotland. Balancing patient flow with the available capacity of NHSScotland is dependent upon delivery of effective patient pathways and processes supported by laboratory services that are able to deliver the right repertoire of testing, in the right place within the right time frame.

The current model of laboratory services delivery across Scotland is not uniformly sustainable in light of the challenges they face

Current laboratories services in the main appear to users of services to be functional and responsive to the needs of local clinicians and patients. However, the current model delivers inherent variability in the attributes and quality of laboratory services provided by the individual Boards. A SWOT and PESTLE (appendix 1) of the present service model, demonstrates inherent issues with the current system and significant drivers for change. Together these deliver a requirement for a new service delivery model for laboratories services in NHSScotland. There is a need to address current issues of:-

- service resilience and sustainability
- issues of workforce recruitment and retention
- variation in levels of service resulting in inconsistencies of approaches to service delivery between Boards
- variation in quality of services across Scotland in terms of compliance with accreditation standards and regulation
- service duplication and varying local priorities impacting on resource availability for introduction of new technologies and other developments

The service model needs to grow to meet the needs of evolving systems of care within Scotland, and organisational change, rising workloads within a cash constrained environment, the workforce issues, ageing infra-structures requiring capital investment and demands for access to new technologies. A new model of service delivery is required to enable access of the population of Scotland to a uniformly efficient, effective, resilient, equitable and affordable laboratory service that
operates at the forefront of technology, which meets required quality standards and complies with regulatory requirements. This is a conclusion of both service providers and other stakeholders.

A programme has been put in place as part of the Shared Services Portfolio to explore a shared services approach to laboratory services that will meet the future needs of NHSScotland

The Laboratories Programme has been established as part of the Health Portfolio within Shared Services. There is a dedicated team in place comprising of a Subject Matter Expert and individuals with programme and project management skills. This team has already conducted significant engagement with stakeholders including holding a visioning workshop. The assessments and recommendations in this paper are based on the outputs of this engagement as well as building on significant work already undertaken by the managed diagnostic networks.

Background

The programme will build on work already done across Scotland...

The Laboratories Programme builds on a body of work that has already taken place through the National Managed Diagnostics Networks (NMDN) in the last year that culminated in a paper delivered to the Diagnostic Steering Group from the National Network Management Service (NNMS) that identified the following challenges/issues: -

- Current clinical services have been established at territorial Board level in response to demand and in line with available resource
- Evidencing compliance with ISO 15189/CPA through UKAS accreditation visits is more challenging for clinical and scientific staff in smaller NHS Boards. There are similar messages concerning implementation of change and role development/skills mix
- Whilst some specialist clinical services are nationally commissioned, most are locally owned, with a variety of cross-boundary agreements in place. Work cannot be transferred between NHS Boards without the support of a Service Level Agreement, which limits the potential to support smaller NHS Boards
- Historical solutions have not been whole-systems focused, meaning that pressures on silo budgets have limited development of diagnostic services. In some NHS Boards, experience of funding and developing services across the pathway of care has made a positive impact on this
- Many NHS Boards have already undertaken degrees of reorganisation and investment to deliver locally.
- The ability of the NMDNs to influence does not currently extend to mandating change, which has at times led to further disparity in service provision; again limiting development of diagnostic services as initiatives are implemented on a board-by-board basis.
- Any future model would require cross-disciplinary development, encompassing the current NMDNs and additional blood sciences.

The last point highlights that there are no NMDNs for haematology and immunology although there are nominated leads for their development who have been engaged in the Shared Services work as part of the Health Portfolio Board and participation in the visioning workshop.

...and has strong support from the laboratories community

A SWOT and PESTLE analysis of the present state of laboratory services in Scotland has been validated by a range of stakeholders at a visioning workshop arranged by the Shared Services
Laboratory Programme. The analyses were based on work undertaken by the managed diagnostic networks. This identified many drivers for change, risks and issues applicable to the current laboratory services delivery model. Stakeholders at the shared services workshop also considered the requirements, risks and issues of an alternative shared services model for laboratories.

**Stakeholders agreed that there is case for change to laboratory services in Scotland.**

Further exercises at the visioning workshop identified how elements of service delivery and planning might be distributed on a spectrum ranging from national to local levels and identification of early enabling work streams that would enable delivery of the distributed service.

**Stakeholders agreed that progression to a distributed services model for laboratories in Scotland is appropriate and should be delivered.**

The distributed service model approach assures that the right level of laboratory testing is made available across Scotland to ensure that the right testing repertoire is available within the correct time frame and at the right location. This latter point is dictated by a requirement to deliver desired patient outcomes and to ensure that the service is configured to enable equitable access to support local patient flows and capacity within and between primary and secondary care. This will afford opportunities for concentration and consolidation of services, enabling the desired and necessary focus of stakeholders on equitability and effectiveness agendas, in addition to efficiency and cost.

The combined drivers for change applying to and through NHSScotland to laboratory services combined, with the availability of new technologies, provide significant opportunities for redesign to enable delivery of a distributed service model. The support of stakeholders is reflected in the workshop outputs that led to their support of a number of priority work streams to be initiated that will enable progression towards a distributed service model and deliver early benefit.

**Assessment**

**There is a clear case for change in laboratories services**

*The current model of laboratory service delivery across Scotland is complex and sustains unnecessary variability in various aspects of form and function across the territorial Boards.***

The laboratory services within NHSScotland are science based services. The exact scope and activity across Scotland is difficult to characterise, as a consequence of issues around the current mechanisms for collection and analysis of baseline data. However, partially characterised data are available from the Scottish Health Service Costs Report (R130) that indicate that in 2014-15 just under 5 million microbiology specimens, 11 million haematology specimens, 2 million histopathology specimens were examined and in addition 82 million biochemistry tests performed across the 22 locations in the 13 boards listed. Volumes will be higher than this as the data set is incomplete. There are in fact a total of 20 different “ologies” recognised by the Royal College of Pathologists delivering laboratory examinations not all of which are reporting data, not all Boards are listed and figures for National Services are not included.

Depending on the speciality as much as 50% of the workload of a particular laboratory may arise from primary care locations and different centres provide varying volumes of referred workload from other Boards. The disciplines are organised in differing configurations within Boards, and there has been varying degrees of consolidation of services and merging of departments into organisational units entitled Blood Sciences.
Through the work of SPAN, histopathology professionals, and the Boards they have already undertaken degrees of consolidation compatible with a distributed services that has seen reduction in the number of labs providing services to 10.

**Governance and planning structures are not optimal to facilitate cross Board working.**

Three major disciplines of Microbiology, Histopathology and Clinical Biochemistry participate in National Managed Diagnostic Networks now overseen by the National Network Management Service. There is no formal governance or management structure spanning the delivery of laboratory services across the individual Boards.

With some exceptions planning of laboratory services and procurement of analytical systems and services across the Boards takes place independently. This delivers complexity and unintentional impacts:

- there are high value managed service contracts of varying complexity at various points in their life cycle in Boards across Scotland. These deliver systems from a range of manufacturers across Scotland that results in sources of variability that impact on cross border working
- provides barriers to alignment of services across Scotland
- local planning tailors services to fit local requirements, but impacts on smaller Boards (e.g. Boards with large work forces changing workforce profiles and impacting on training capacity)
- procurement processes are becoming more complex - delivering significant resource requirement to enable delivery of effective evidenced based procurement in each Board

Discussions within the NMDNs and at the Shared Services visioning workshop highlighted a specific issue around governance raised many times within the Diagnostic Steering Group. Within the current model change is more usually enabled nationally within laboratories via consensus. This has proven comparatively easy if there is no resource requirement associated with the change, but even then adoption may be patchy. If there is a requirement for new resource allocation within individual Boards to enable the agreed change, this currently requires individual business cases to be delivered to each of those Boards. Uniform delivery of resource to enable agreed change/improvement therefore often proves difficult due to the fact that each Board has conflicting priorities on their available resources. This has identified the need to establish a governance arrangement to enable national variation and improvement to be addressed uniformly across the Boards.

**Current laboratories data is in most cases incomplete, lacking in granularity and ill defined.**

Data describing the laboratory services are available via the Scottish Health Services Cost report and the Keele University Benchmarking Service. The data around most disciplines are currently considered to be in the main inadequate to meet the needs of the Shared Services programme and meaningful benchmarking. Histopathology network (SPAN) has established a discipline specific initiative to improve data quality available through National Managed Network Management System.
Current IT infrastructure does not facilitate cross Border working and lab to lab communication.

The NMDNs and Shared Services identified the importance of information technology (IT) in any future developments.

It is acknowledged that delivery of common laboratory information management system (LIMS) for Scotland requires convergence of laboratory and other processes, use of shared protocols, common coding systems and taxonomies. There are currently several LIMS in use in Scotland all individually configured to manage the variant processes within each Board.

There is an added complexity to progressing this in that the procurement cycle for these systems across the Boards is staggered. There are also tensions arising from the fact that the current systems have varying degrees of functionality that make some systems better suited to some disciplines than others (e.g. histopathology and medical microbiology require more functionality around textual reporting (word processing) than blood sciences departments). This means that the LIMS systems adopted reflect compromises and complexity at Board level. Further information on a distributed LIMS system is provided in the appendix (2).

The current workforce configuration does not provide the resilience required for the future.

Work force issues figured widely in discussions around current and future configurations of laboratory services. A subgroup of the Diagnostic Steering Group delivered a report on workforce in diagnostics in 2013. The issues remain largely the same with a requirement for workforce planning around laboratory personnel at a national level to address demand and supply issues for knowledge and skills in various groups. New technologies are providing opportunities for cross discipline working, cross border working and changes in role definition to enable a distributed service model. Variation in working practices across Boards and issues with Agenda for Change protection are proving to be challenging for service providers within the current model. Challenges are also arising from changes in education and training of professional groups that are impacting on supply and driving a need to deliver joined up national approaches to delivering an appropriately designed and resilient workforce.

There is significant potential to exploit new technologies.

There are new technological approaches that will enable change to deliver an effective and affordable distributed service. Commercial organisations are developing new approaches to delivering and financing those, and other health care economies have experience of wider system working (e.g. NHSWales).

Another development is in digital pathology, which provides the opportunity for moving images to people rather than materials to labs. Attitudes to this way of working are changing as the technology becomes more robust. It has been estimated that workload for Histopathology has increased by 30% in recent years whilst the number of pathologists has increased by circa 8%. Subspecialisation of pathologists and the challenges of a population dispersed over a large geographical area together drive a need for an assessment of the value of these new technologies. It also supports the redesign of roles to enable delivery of the required services which are becoming more technically demanding. This is on the radar of SPAN but could be driven via appropriate pilots co-produced with shared services.
A distributed service model could deliver significant benefits

- improved sustainability through a scalable, flexible, innovative service
- improved resilience through an ability to transfer work across borders
- improved equity of service across the country through standardisation of service offering and approaches
- access to latest technologies at enabled centres accessible to all Boards
- increased efficiency to either realise cost savings or increase capacity through reduced waste and economies of scale

These benefits need to be described in terms of key performance indicators that are dependent upon sound business intelligence processes underpinned by well defined data and incorporated into detailed business cases to support change.

Stakeholders have identified a high level vision for a distributed laboratories service model which could deliver the identified benefits

The distributed service model proposition would mean that not all laboratories in the future provide the same range of testing that they are doing so today, but will mean that all patients will have access to the right testing regimes within the correct time frame to enable equitable patients journeys and pathways through their various episodes of care with desired outcomes. Testing will be distributed to enable optimal delivery and best uses of resources across the whole system. The model will require a critical mass of resource at all sites to deliver at least minimum immediate service requirements for the local health care system. Over capacity and expertise at those sites may be capitalised upon through redistribution of work. By way of explanation, a critical mass of knowledge, skills and capacity may be required at a site outside the major centres to deliver local service that delivers at the same time capacity and opportunities to develop a specialist service that would benefit a Scotland wide provision.

This approach fundamentally will enable delivery of local and national needs within a structured operating environment that is consistent with the vision for shared services identified within the Deloitte report and embracing the issues identified within the Nuffield report on the future of pathology services.

The overarching principle is to deliver an efficient, effective, resilient, equitable and affordable service, which will define a set of guiding principles outlined in appendix (3).

Successful delivery of the distributed service model will be underpinned by a set of enablers

There are a number of underpinning enablers that need to be in place to enable a distributed services model. If you consider the simplify, standardise, share approach these enablers are about simplifying and standardising the service in order that we can facilitate sharing.

This vision will be enabled by:

- A robust governance structure balancing national coordination with local needs
- Joined up IT systems that enables cross system working optimal operational delivery with lab to lab communications, provides business intelligence and opportunities for big data applications and user interfaces that provide support for the user while hiding any organisational complexity.
- Robust and consistent benchmarking data to enable service planning and improvement
- A resilient **workforce** with the right knowledge and skills that can work flexibly across borders.
- **Standardisation** of systems, processes and approaches
- Embracing **innovation** in approaches to service delivery
- An appropriate **logistics** approach to enable timely and safe transport of samples between centres supported by lab to lab communications to enable associated and required data flows.
- A clear vision committed and enabled clinical and professional leadership and a well defined strategy for delivery aligned to national priorities.

**Work can begin now on some of these enablers to pave the way for any future model whilst delivering early benefit.**

We have worked with stakeholders to identify the priority areas where work can begin to pave the way for a distributed service and deliver early benefit, please see appendix (4).

**Recommendations**

**Chief Executives are asked to:**

**Give approval to the Laboratories Programme to develop a strategic paper on the proposed distributed service model** for consideration by Chief Executives. The paper will set out in more detail the case for change and options for a distributed services model. It will be developed through a series of workshops and wider engagement with stakeholders. It will also be highly reliant on data from individual Boards, which will form a baseline. Most of this will be developed through our data workstream but we will need to supplement this with additional information from Boards on specific topics.

**Give approval for the Laboratories Programme to progress a small number of workstreams** in conjunction with the National Managed Diagnostics Networks and other stakeholders. These workstreams will help to pave the way for any future model whilst delivering early benefit. Leads would be appointed from within the laboratories service with project management and reporting through Shared Services:

- Improving laboratories **data**
- **IT** to enable a distributed laboratories service
- Reduction in **variation** of laboratories service provision
- Exploring **innovative solutions** of laboratories (digital pathology as an initial pilot)
Appendix

1. SWOT and PESTLE analyses

2. LIMS

There is currently no shared specification for LIMS systems for Scottish laboratories that might be used to enable convergence and alignment of systems to enable cross border working and lab to lab communication.

There are high volumes of work that currently flow between laboratories that require manual processes to transfer information between LIMS systems. These processes carry a staffing and patient safety issues. Volumes of work transferred between laboratories might be expected to further increase within a distributed service model. This has been identified a driver for adoption interim systems to enable flow of works between laboratories that exists now and that will increase as the distributed service model develops. Delivery of systems such as NPEx was identified as an interim solution within the shared services laboratories visioning workshop. This is currently being put in place in a number of Boards and might be considered for a national implementation.

Variation in LIMS systems and variation in local service configurations and processes are seen as barriers to cross border working of laboratory professionals (e.g. cross border reporting and results validation). SPAN highlights the need to have a common IT system to support this work and a move towards digital pathology to enable cross border reporting. The Scottish Microbiology and Virology Network (SMVN) again is highlighting the need to move to a common IT system but with an initial requirement to adopt standard operating procedures prior to implementation of a common LIMs. The Scottish Clinical Biochemistry Network (SCBMDN) holds similar views.

The electronic user interfaces with laboratory services again are not uniform across Scotland. Most Boards have a different electronic requesting interface for primary and secondary care. They carry an overhead of maintaining two interfaces to the same local service. The systems employed usually have varying capabilities for delivery of decision support and enablement of demand optimisation initiatives. Again variability of service provision and processes at Board level provide a level of complexity that will carry cost to the whole system. Functionality of electronic ordering systems can significantly impact upon the efficiency of laboratories (e.g. necessitating the adoption of secondary numbering systems).

There is currently no forum to enable joined up discussions between the laboratories that provide a major component of any electronic patient record and e-Health strategists.

Two statements have been made that highlight the importance of a new focus within any new model for laboratory services development. The first is that modern laboratory services are information and knowledge management services. The second is that the practice of modern medicine is beyond the capability of the unaided mind. If accepted then it follows that new skill sets and tools are needed within the laboratory services to ensure delivery of a high impact interface between laboratories and users to ensure optimal use of resource. This ties in demand optimisation not only from the aspect of managing observed variation but also through delivery of
an approach that involves laboratory professionals in co-production and delivery of effective patient pathways through knowledge rich requesting interfaces with decision support and new ways of reporting.

3. Guiding principles

A full list of guiding principles listed below;

1. enables national planning of services while enabling a focus on local needs (right testing, right place, right time).
2. is aligned to national priorities and able to deliver and demonstrate value in the context of Triple Aim, supporting health care improvement in line with the requirements of the National Clinical Strategy (focused on the patient and the user).
3. allows the free flow of materials, information, data, knowledge and skills across organisations.
4. reduces complexity of service delivery, enables appropriate standardisation of systems and processes and sharing of resources and best practice (Simplify, Standardise and Share).
5. delivers efficient, effective, resilient, affordable laboratory services operating at the forefront of technology that addresses waste, harm and variation in terms of both service provision and clinical application of their outputs.
6. enables optimised demand on services through appropriate interaction with users.
7. meets pre-requisite quality and statutory requirements via shared approaches and sharing of practice.
8. delivers the correct level of service locally to maintain and sustain local uniform standards within the Boards in terms of equitable patient outcomes, flow and capacity (user/whole system focussed).
9. delivers of services designed on lean principles.
10. employs a once for Scotland approach through an appropriate governance structure.
11. enables rapid dissemination of best medical evidence and guidance.
12. has an infrastructure that is able extract full value from investment (e.g. optimal use of capacity and knowledge and skills).
13. exploits economies of scale by consolidation or concentration where appropriate of certain workloads onto fewer sites (e.g. work classified as non urgent/cold capitalising on automation developments, or considered technically complex, or requiring high capital investment).
14. is able to innovate and has developed mechanisms to enable translation of best practice and the benefits of new technologies uniformly into national approaches.
15. enables both proactive and reactive approaches to service improvement that can be shared across the wider system and delivered from laboratories uniformly meeting required national and international quality standards.
16. supports of local education and training of laboratory, other NHS personnel and students to ensure optimal delivery and usage of laboratory resource.
17. supports of clinical research and other forms of research and development within NHSScotland.
18. supports delivery of POCT in primary and secondary care.
19. enables national workforce planning

This is long, but not exhaustive list of attributes, but touches and addresses many of the requirements, issues and risk identified in the shared services laboratory programme visioning workshop and the work of the NMDN.
### Early enablers

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<td><strong>Exploring innovative solutions of laboratories (digital pathology as an initial pilot)</strong></td>
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<td>• Reduced turn around time to diagnosis.&lt;br&gt;• Improved accuracy of diagnosis</td>
<td>• pilot to commence May 2017&lt;br&gt;• pilot to conclude Oct 2017&lt;br&gt;• recommendations to be completed (TBC)</td>
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### Data workstream

Current data describing the laboratory services are available via the Scottish Health Services Cost report and the Keele University Benchmarking Service. These data around most disciplines are currently considered to be in the main inadequate to meet the needs of shared services programme and meaningful benchmarking or to describe the constituent services that are subject to change. Histopathology has attempted to address the issue by establishing a discipline specific initiative to improve data quality available through National Managed Diagnostic Network Management Services employing IMS. The work stream proposed here will be sponsored jointly by Shared Services and the NNMDNS. The workstream will define the scope of the data to be...
collected and mapping this to data requirements to enable constructive challenge, service improvement and planning. In essence there will be a requirement to:

- to improve data collection and reporting for laboratories in Scotland
- to work initially with the Keele University Benchmarking Service (KUBS) to develop data benchmarking to meet the needs of the shared services Laboratory Programme and Scotland’s operational requirements in the shorter and longer term.
- to identify future approaches with Public Health Intelligence and KUBS to build on the success of the histopathology initiative to deliver a robust and sustainable system to produce data with quality and integrity to meet the needs of the business, enable constructive challenge of services across Scotland and enable benchmarking with other services within the UK.

IT workstream

The requirement for common IT systems has been identified as essential pre-requisite to delivery of an effective shared service. It is clear that this should be a long term goal. Base work is required to simplify and standardise systems of working through use of common standard operating procedures, coding systems, taxonomies to enable this goal. It has been identified that Boards are in different stages of their procurement lifecycle for LIMS and introduction of electronic ordering systems. It has also been identified that some Boards are in a critical position and that there is no scope for delay in procurement. This presents a challenge. A pause on procurement may compromise some Boards while procurement of a single national system may not be practical or achievable in the shorter term and result in delivery of a single system configured in many ways to deal with local complexities. An option would be to deliver some guiding principles and a shared specification of IT systems and electronic ordering systems that would enable convergence of systems against agreed standards.

This sets an early agenda item and work stream for the progression of a distributed service model.

Reduction in variation of laboratories service provision

The variation in service configurations, systems and processes defining laboratories across the Health Boards in Scotland have been identified as delivering many challenges to delivery of a distributed service. The benefits of the service in terms of efficiency, effectiveness, resilience and safety will require a free flow of materials, information, data, knowledge and skills across organisations. Even within the current model variation is recognised by the managed diagnostic networks as an issue that needs to be addressed. It is evidenced for example in terms of differing availability of tests across Boards, differences in reference ranges published and applied, use of disparate coding systems and taxonomies. Priority targets for reduction of variation need to be identified and improvement projects put in place to enable national reduction of variation across Boards in preparation for delivery of common approaches to IT and wider system working of personnel and to address patient safety issues. A multidisciplinary group should be established to deliver some guiding principles for identification of those targets with a view to the MDNs progressing delivery at a practical level.
Exploring innovative solutions of laboratories (digital pathology as an initial pilot)

Distributed services will depend upon movement of materials people and information and knowledge. Technological innovation, exemplified by digital pathology, enables electronic transfer of images and relevant information from one site to another thereby enabling Histopathologist to work remotely and to support workloads over wider geographical areas. There are barriers to the delivery of a national distributed histopathology service that could be addressed by the introduction of a digital pathology solution. The technologies to enable this are now available commercially and enable and promote the following benefits within cancer and other pathways;

- Improved accuracy of diagnosis
- Improved turnaround times for diagnostic reports and diagnosis
- Reduced risk of specimen loss
- Reduced logistical costs to transport specimens
- Improved workforce flexibility and cross-border working

If an integrated digital pathology system is achieved initial considerations indicate that in addition to addressing the challenges, adoption of the approach to service delivery will enable consultants to reach better-informed decisions, as a consequence of improved access to patient centric information. Sharing multidisciplinary knowledge assists pathologists in making informed decisions and opens new insights into diseases.

This work stream will deliver a pilot project across to large Health Boards. The key motivation for conducting the pilot is to deliver an objective understanding of the potential for service improvement and benefits that may accrue through delivery of a digital pathology system. With further identification potential to support a Distributed Service model.

The pilot will identify the potential benefits to patients and the organisation. Areas to be objectively considered include:

- Impact on diagnosis time, and potential benefits in the context of cancer diagnosis
- Improved access to expert opinion not available locally
- Efficiency savings in relation to administrative tasks, transportation (of samples) and workforce resourcing
- Improved patient safety and consequent cost avoidance due to reduced litigation, as a result of lost samples or inaccurate reporting

A deliverable of the pilot an objective assessment of the potential benefits, risks and issues of the application of digital pathology system within two Boards and enable consideration of those in the context of the multi-board or national application. Advantages to the Boards of extension in this way is that specialists at remote sites are able to access images remotely, and in a timely manner, to enable improved accuracy of diagnosis for more complex cases within a shorter time frame. The output of the pilot will include an assessment as to the potential reduction of turnaround time to diagnosis of cancers and other cases. It is currently assumed that the need to transfer materials physically between sites for examination has a negative impact that can be negated as a consequence of access to electronic images of materials prepared locally.
Potential benefits of digital pathology include:

- Consolidation through potential for system integration can result in increased efficiency in processing data and supporting the function of multi-disciplinary teams to deliver improved patient outcomes.
- Improves access to expert opinion of sub-specialists enabling improved turnaround time to diagnosis - timely and equitable access to expertise across Boards.
- With appropriate interoperability will allow pathologists to access both current and historical data from a spectrum of different data sites quickly and easily.
- With appropriate interoperability it will provide pathologists with a complete view of patients’ health and care.
- Provide an optimized delivery structure by removing geographical boundaries and limitations.
- End-to-end sample management with automated sample identification to better control the collection and transport of samples to laboratories from surgeries and hospital clinics.
- Ability to carry out data mining to obtain business intelligence to better understand pathology processes. This information can then be used to improve pathology services and patient outcomes.
- Improves use of existing resource by providing virtual pathology services at remote sites and facilitating consultations and second opinions.
- Sharing information to improve patient care such as patient electronic health records and facilitating consultations and referrals.