

Transport and Environment Committee

10:00am, Tuesday, 07 June 2016

Review of Scientific Services & Mortuary Services

Item number	7.8
Report number	
Executive/routine	
Wards	All

Executive summary

This report provides an update on work to investigate the feasibility of creating a shared Scientific and Public Analyst with other Scottish local authorities and of establishing a shared laboratory and mortuary facility with NHS Lothian at the Edinburgh Royal Infirmary BioQuarter site. The report seeks approval to take both of these pieces of work to the next stage.

Links

Coalition pledges	None
Council outcomes	CO10 , CO15 and CO26
Single Outcome Agreement	SO2 ,

Review of Scientific Services & Mortuary Services

Recommendations

It is recommended that Transport and Environment Committee:

- 1.1 Agrees in principle to the necessary actions being undertaken to investigate further the creation of a Scottish Shared Scientific Service, namely:
 - Determining the full financial impact on each local authority partner; and
 - Developing a detailed Business Plan for the new service.
- 1.2 Notes that the Council is participating in the Scottish Shared Service review programme, recognising that this does not commit the Council to joining a shared scientific service.
- 1.3 Agrees in principle to entering into an initial agreement with NHS Lothian to develop an outline business case for a shared Mortuary, Microbiology and other science laboratories at a new build site at the Edinburgh Royal Infirmary BioQuarter site.
- 1.4 Agrees to accept further reports on the outcome of the financial impact assessment of a Scottish Shared Scientific Service and the outline business case for the shared laboratory and mortuary facility in the Edinburgh BioQuarter.

Background

- 2.1 There are four local authority Scientific Services laboratories in Scotland, located in Aberdeen, Dundee, Edinburgh and Glasgow. The four laboratory services provide similar functions in support of Scottish local authorities' statutory duties and operational responsibilities. Services are also provided to commercial organisations and the public on a chargeable basis.
- 2.2 Scientific services are utilised by Environmental Health and Trading Standards services for routine surveillance testing and responding to emergency situations. Scientific services also provide support to other Council and public services, such as property, housing, health and safety, police and fire and rescue.
- 2.3 Scientific services undertake a range of sampling, chemical and microbiological testing relating to food safety and standards, agricultural materials (such as animal feeding stuffs and fertilisers), drinking water, recreational water, air pollution, environmental materials (such as soil, dusts), health and safety (such as asbestos) and consumer goods (such as toys, electrical goods, cosmetics).

- 2.4 In order to respond to regulatory demands to protect the health and safety of consumers, there is an increasing requirement for sophisticated testing, which requires specialised equipment and staff with specialist knowledge and expertise to undertake the testing, operate the equipment and interpret complex test results.
- 2.5 Scientific services are also operated by other public bodies, such as the Scottish Environment Protection Agency (SEPA), Scottish Water, Scottish Forensic Science Service and NHS hospitals. Many of these bodies are in the process of reviewing and rationalising their scientific services to achieve more efficient, economic delivery of services.
- 2.6 In 2004, after detailed work by consultants, the Lowenberg Report was published under the auspices of CoSLA with a proposal for a joint Scottish Scientific Service involving all four scientific services laboratories. However, the report lacked a clear business case and financial clarity and, after discussions between the four Chief Executives of the city councils operating the laboratories, the proposals were not implemented.
- 2.7 In recent years Edinburgh Scientific Services has increased its customer base winning contracts from public and private organisations. Income growth was 10% in 2014, 21% in 2015 and 19% in 2016 with the service generating a significant surplus. The growth in business has taken the laboratory at Seafield up to capacity thus future growth opportunities may be restricted.
- 2.8 The City Mortuary which is now managed through Scientific Services is based in a building at the Cowgate that has reached capacity for safe storage of bodies. The building is approaching the end of its useful lifespan with some facilities no longer fit for purpose. Nationally the Crown Office Procurator Service is consolidating the mortuaries it uses for suspicious death which has resulted in bodies from Central and Fife regions being submitted to Edinburgh for post-mortem examination.

Main report

Scientific Services in Scotland

- 3.1 Currently, the majority of local authority public analyst services are provided by 4 laboratories operated by Aberdeen, Dundee, Edinburgh and Glasgow City Councils. Jointly these labs are responsible for providing food safety, environmental, and consumer protection related scientific services to the 32 Scottish local authorities and other public and private sector clients. There is a risk that the current model is no longer sustainable due to reduced spend by the local authorities and the likelihood of each local authority public analyst service having to compete against each other rather than working together in a collaborative manner. There is also increasing competition from private sector

providers. In order to protect the role of Scottish public analysts' services and deliver best value for the service users, a new model of service delivery requires to be developed.

- 3.2 An Outline Business Case (OBC) was prepared by the Improvement Service (IS), in conjunction with officers from Aberdeen, Dundee, Edinburgh and Glasgow City Councils, at the request of the Society of Local Authority Chief Executives (SOLACE Scotland). The OBC determined that there was a case for implementing a Shared Service Model and recommended that this was taken forward for further development through a more detailed Business Case, to be approved by the local authorities.
- 3.3 A draft Business Case for a single Scottish Shared Scientific Service has now been prepared, which provides a structure and business strategy for a single organisation that would deliver Public Analyst and other scientific services for the benefit of Scottish local authorities and public sector agencies.
- 3.4 The new organisation would be a partnership of Local Authority members and provide the framework to deliver cost savings back to its partners, with a strategy for growth through the development of strategic partnerships and service reform.
- 3.5 The objectives of the new organisation would be to deliver sustainable, high-quality scientific analysis and advice, which supports regulatory commitments, to ensure the safety and quality of food, water, consumer products, and the environment.
 - a) This will be achieved by integrating each organisation's capability to meet the needs of customers and stakeholders across Scotland. More specifically the new service must: provide the platform to follow a growth strategy;
 - b) provide value for money for its customers and stakeholders;
 - c) be flexible and proactive in meeting future customer needs;
 - d) have sufficient resilience for national and local 'incidents';
 - e) be based on the principle of having strong public sector science base and;
 - f) minimise the risk to current service provision.

Scottish Scientific Services Business Case

- 3.6 The key benefits of the proposed Shared Service are that it would be wholly owned by, and accountable to its local authority partners. The proposed structure of the Shared Service is for a 'dual' Limited Liability Partnership model, which would allow the new service to provide core services for its local authority members, whilst maintaining and developing existing and further business opportunities with the wider public and private sector markets.
- 3.7 It is anticipated by the consultants that the proposed service would deliver savings to its partners in the region of £1.4m over the first three years. The Business Case sets out a mechanism for returning around half of surpluses back

to the service's members through an annual rebate, based on how much each authority spent with the service in that year.

- 3.8 The model's savings are based on income from all the four laboratories. However, sensitivity analysis has been carried out, which determines that the service would be sustainable in the event of only three labs taking forward the proposal.
- 3.9 The proposed service would be committed to delivering best value analytical scientific services for its partners benefit. The primary objective of the service would be to deliver best value services back to its partners, whilst ensuring that an element of reserves is retained to further develop the service.
- 3.10 The rationale behind this model is that there is currently significant duplication between the four labs which results in an underutilisation of equipment and other resources. By aggregating samples, efficiencies can be achieved by improved throughput on equipment. This should also result in increased capacity to take on additional business.

Edinburgh Scientific Services

- 3.11 The current Scottish Scientific Services proposal submitted to SOLACE in February 2016 puts all surplus income (and losses, with Aberdeen and Dundee reported at best to be operating at breakeven) into a general pot and distribute the combined surplus to the 32 local authorities as a dividend. Edinburgh Scientific Services has undergone significant growth in the last 8 years moving from 18 staff to 50 staff and makes a surplus income. Whilst income has grown at Edinburgh Scientific Services the income for the other three Scottish laboratories have been flat or shrunk.
- 3.12 In meetings with the project consultants the Council has requested that it retain a significant portion of its surplus income rather than transfer it to the general national Scottish Scientific Services pot. Significant movement would be required during negotiations to make the proposal financially attractive for the Council.

Shared Laboratory and Mortuary with NHS Lothian

- 3.13 In parallel with the work on a Scottish Shared Scientific Service, discussions have also been taking place between the Council and NHS Lothian on a shared laboratory and mortuary facility in the Edinburgh BioQuarter. It was identified by Corporate Property Estates that sale of the Cowgate mortuary and Seafield laboratory could yield significant capital receipts which could be used to part finance a new joint facility which would benefit from shared utilities and communal areas.
- 3.14 In conjunction with Estates, sites at Shawfair, Riccarton and Bioquarter were investigated. BioQuarter was identified as the lead option and discussions took place with NHS Lothian, University of Edinburgh and Scottish Enterprise. The current and previous Chief Executives have met with NHS Lothian Chief

Executive to discuss the outline blue print for BioQuarter which may include a joint Council/NHS Lothian facility.

- 3.15 Working in partnership with the Council, NHS Lothian have produced a draft Strategic Assessment (Appendix 1) to assess the potential for greater synergies between Council Scientific Services and Mortuary Services and NHS Lothian Mortuary, Microbiology and other science laboratories at a new build site at the Edinburgh Royal Infirmary BioQuarter site. This work links in with the BioQuarter and East Wedge Masterplan⁽¹⁾.
- 3.16 This work shows significant potential for shared working between the Council and NHS Lothian to create a based locally regional public sector science hub, possibly as part of a Scottish Shared Scientific Service. A shared facility with NHS Lothian could also potentially realise efficiencies in investment in, or access to, expensive scientific testing equipment.
- 3.17 The Strategic Assessment for a shared scientific laboratory and mortuary has received support from senior management with NHS Lothian and the next stage would be the development of 'Initial Agreement' with the Council to develop an OBC with a view to the eventual development of a detailed business case for submission to the Scottish Government.

Conclusion

- 3.18 The Council's Scientific Services has been successful in both developing it's national reputation for providing high quality public analyst and laboratory services to a range of public and private sector organisations and in increasing it's income year on year in a competitive environment. However, the Service needs to consider its' future direction in the context of an increasingly competitive market, the prominence of the shared services agenda in the public sector and the need to be able to invest in or have access to modern laboratory facilities and scientific testing technology. Both the Scottish Shared Scientific Service and the shared laboratory and mortuary facility with NHS Lothian offer the potential opportunity to secure the future of a high quality public analyst and scientific service provision for the City of Edinburgh Council and other public sector partners. It is therefore proposed to take both these options to the next stage and to report back to committee on the outcomes.

Measures of success

- 4.1 Edinburgh Scientific & Mortuary Services are delivered in a sustainable way providing good customer service.

Financial impact

- 5.1 It is anticipated that £25,000 of professional and consultant fees as a pro rata contribution will be required to continue the two review process.

Risk, policy, compliance and governance impact

- 6.1 The information contained in this report is a review of scientific and mortuary services provision. This report does not impact on any existing policies and no risks have been identified pertaining to health and safety or governance. Further, there are no regulatory implications that require to be taken into account.
- 6.2 The report seeks to address storage capacity at the mortuary which is identified as a risk on the risk register.

Equalities impact

- 7.1 This report is a statement of facts regarding provision of Scientific & Mortuary Services in Edinburgh and does not propose changes to current policies or procedures. As such a full equalities impact is not required. The contents have no negative impacts on the Public Sector Equality Duty of the Equality Act 2010.

Sustainability impact

- 8.1 The content of this report is a statement of facts and does not in itself promote any environmental impact.

Consultation and engagement

- 9.1 A wide ranging consultation has taken place as part of the review with all 32 local authorities in Scotland, Scottish Government, Food Standards Scotland and SEPA.

Background reading/external references

[http://www.edinburgh.gov.uk/download/meetings/id/43094/item_no_71 -
_edinburgh bioquarter and south east wedge parkland finalised masterplan](http://www.edinburgh.gov.uk/download/meetings/id/43094/item_no_71_-_edinburgh_bioquarter_and_south_east_wedge_parkland_finalised_masterplan)

[http://www.edinburgh.gov.uk/download/meetings/id/38615/item_7_13-
review of provision of scientific services in scotland](http://www.edinburgh.gov.uk/download/meetings/id/38615/item_7_13-review_of_provision_of_scientific_services_in_scotland)

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Links

Coalition pledges	None
Council outcomes	CO10 – Improved health and reduced inequalities CO15 CO26
Single Outcome Agreement	SO2 - Edinburgh's citizens experience improved health and wellbeing, with reduced inequalities in health.
Appendices	Appendix 1 CEC/NHS Lothian Strategic Assessment

City of Edinburgh Council and NHS Lothian

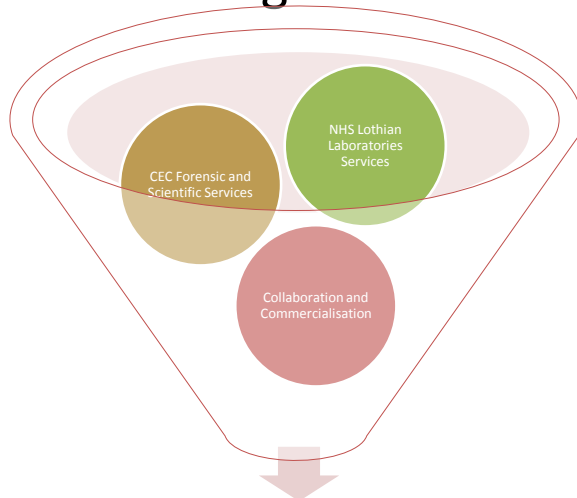
**A Shared Vision
Public Health Scientific Services Delivered by
a National Flagship Life Science Campus
at Edinburgh BioQuarter**

Strategic Assessment **Draft**

Forensic Pathology
Scientific Testing
Mortuary
Microbiology
Molecular
Genetics
Histopathology
R&D
Commercialisation

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Sharing Services



EBQ shared services model

1 Executive Summary

Representatives from City of Edinburgh Council and NHS Lothian have met on a number of occasions in the past 12 months to discuss the emerging opportunities for collaboration and co-location of mortuary and scientific services and **creation of a shared life science campus**. These opportunities are especially important in the light of emerging local authority and health integration agendas and the Christie Commission recommendations. The current budget outlook also provides a strong driver to seek increased efficiency and effectiveness through joint working and sharing services to provide better patient and customer outcomes.

A number of key areas were identified where the potential for joint action can be explored. These include:

- Potential for shared scientific services
- Potential for shared mortuary services
- Commercial development of services
- Research and Development

It was agreed at the 18th November 2015 meeting that a draft Strategic Assessment document would be jointly authored by the in scope service groups and respective organisations.

In terms of geographical scope of these services NHS Lothian operates as a tertiary referral board providing analysis to 850,000 population of Lothian. It also accepts testing referrals for the whole of Scotland for specialist services and holds Service Level Agreements with a number of Scottish Health Boards. Work is also undertaken

for R&D commercial and CSO funded trials with an income of over £2.5 million annually.

The City of Edinburgh Council Scientific Service provides the statutory functions of Public Analyst, Agricultural Analyst and Food Examiner and other scientific services on a cost recovery basis to eight other Scottish local authorities representing 30% of the Scottish population: East Lothian, Midlothian, Scottish Borders, Highland, Orkney, Shetland, South Lanarkshire and West Lothian. The City of Edinburgh Council Mortuary Service works with the authorities in Central, Fife and Lothian & Borders



The Shared Vision

A national flagship life science campus at Edinburgh BioQuarter in partnership with the City of Edinburgh Council and NHS Lothian that delivers shared cutting-edge public health scientific services and drives novel research and development translating into healthcare quality improvements and economic benefits.



2 Strategic Context

City of Edinburgh Council (CEC)

Due to expansion of their services it has been recognised for a number of years that both scientific services and mortuary services have building capacity constraints. These issues were red flagged in an Internal Audit of corporate risk factors. A feasibility study was carried out to look at options which included expanding the current footprints, leasing or purchasing properties on the open market in Edinburgh or building a fit for purpose replacement. The Edinburgh Scientific Services (ESS) laboratory at Seafield (700m²) and mortuary at Cowgate (400m²) are both without mortgage and the proceeds from their sale in the open market could subject to Council committee approval be used to part finance a new build construction.

It was expected that co-locating two or more CEC services on one site would reduce the number of buildings in the overall council estate and allow synergies through integrated services, use of common utilities, staff accommodation and reception areas. A CEC owned greenfield site was originally identified at BioQuarter next to the newly built NHS car parks facing onto Little France Road. This was an attractive option since construction cost would not involve land purchase and would move the services close to potential NHS partners. It was anticipated a building of 2,000m² would be suitable split as follows; laboratory space 1,000m², mortuary 700m² and office space 300 m². This would be expected to house 40 laboratory and associated staff, 5 mortuary staff and 20 other CEC staff requiring service linked office based accommodation.



Discussions with NHS colleagues about the proposal quickly identified there were local commonalities with NHS Lothian that would allow for a different type of vision to be created as an effective ongoing shared/partnership service.

Looking at a national agenda Scotland is renowned for its quality food production which contributes to economic development, the wellbeing of society and reduced demands on other public services. It is estimated that exports of Scottish food and drink has grown by 73% between 2002 and 2013 and directly employs around 113,000 people across Scotland.

In this context it is vital that the public sector is in a strong position to prevent or react to major incidents such as food authenticity scandals (e.g. Horsemeat) or an outbreak of Legionella. With regards to food, a series of national reports were commissioned (the [Scudamore](#), the [Elliot](#) and the [Jones](#) reports), which concluded that:

- There should be a strong public sector science base;
- There should be a greater collaboration between public bodies, including rationalisation of laboratories;
- There should be creation of a modernised integrated Public Analyst/Scientific service comparable with Public Health England's microbiological laboratory network.

NHS Lothian

The strategic plan for Laboratory Medicine is based around the Laboratory Renew programme which has been ongoing since late 2011. This is a change management programme focussing on application of technology, consolidation of services and workforce planning.

Laboratory Medicine in NHS Lothian is arranged on 4 sites (RIE, WGH, SJH and RHSC) processing 13 million tests with a WTE of around 550. Space is at a premium on the RIE site and certain services are still operating over 2 sites (such as Histopathology).

As part of the Labs Renew strategy, Blood Sciences departments have been created at RIE, WGH and SJH. It is planned to re-provide RHSC at the RIE site in 2017. Microbiology services are still at RIE and SJH with a plan to automate and relocate to the RIE site. Pathology services are delivered from two sites (RIE and WGH) and there is little scope for additional efficiencies without consolidation. Gene Services also operate across two sites and from sub optimal accommodation. The capacity for growth or increased effectiveness is limited. Finally, NHS Lothian hosts the Forensic service at RIE but activity in that is undertaken off site in the Public Mortuary.

Identifying alternative sites for one or more of the services currently housed on the RIE site would provide wider opportunities for amalgamation of staff groups, equipment and services within Laboratory medicine. Furthermore, this approach would assist with the overall NHS Lothian site master planning process and pressures associated with availability of space in the acute hospital sites such as the

RIE. Limitations to the scope of change that can be achieved, such as the PFI arrangements at RIE, also need to be taken into consideration.

3 Overall Concept

The published Strategic Master Plan for the Edinburgh BioQuarter places certain constraints for development on the site. Discussions at initial meetings of the ad-hoc group working on this Strategic Assessment have concluded that a new build within the Edinburgh BioQuarter is likely to meet most if not all of the strategic aims from both CEC and NHS Lothian. This will also provide a level of assurance around efficient and effective use of services. It should be noted this is not an option appraisal.

The proposed shared building concept at Bioquarter will allow options for a shared or partnership service delivery model to be examined in more detail. It is anticipated that sharing services may open up expansion of services opportunities providing an East of Scotland science hub solution to NHS and Public Scientific services.

These opportunities are especially important in the light of emerging local authority and health integration agendas and the Christie Commission recommendations. The current budget outlook also provides a strong driver to seek increased efficiency and effectiveness through joint working and sharing services to provide better patient and customer outcomes.

The main concepts of the NHS and CEC strategic visions are to

- Combine services to increase efficiency, effectiveness and quality
- Provide better patient and customer outcomes.
- Reduce carbon, energy usage and waste
- Make effective use of floor space
- Provide suitable working environment and collaborative working space for staff
- Increase income/commercialisation and R&D profiles

4 Review of Progress to Date

There have been initial discussions From November 2014 to summer 2015 around scoping of the project. This included visits to the new mortuary and laboratory services building at Queen Elizabeth Hospital in Glasgow and a presentation from the design architects. Discussions then moved onto an examination of the strategic context and opportunities for sharing services. During Summer 2015 until the present date outline high level planning of building structure and size and continued discussion on levels of shared services have taken place. More detailed draft architect plans are now in preparation.

5 Description of In Scope Services & Sharing Opportunities

There are five sections to this document

Section A: NHS services – services are defined that would benefit from being together on one site

Section B: CEC services – services that may require to be maintained as standalone

Section C: Shared services – services may benefit from a shared service element

Section D: R&D opportunities - work that would benefit from an R&D perspective as a result of a combined service

Section E: Commercialisation opportunities

Section A – NHS Services

Histopathology

Histopathology in NHS Lothian is currently split between the RIE and WGH site – all of the sample processing is done at RIE but there is a significant footprint of Histopathology consultants and pre-processing done at WGH.

There are governance issues related to the movement of slides, tissues and blocks that can add delay and error to the current system. Effective working within the team of Histopathologists (36WTE including University of Edinburgh employees)

There is an opportunity for greater technical staff efficiency and consultant team working to be enhanced to reduce costs and turnaround of histological function.

The University of Edinburgh would be interested in investing in a human biofacility built around the mortuary/ human tissue laboratory facilities. While this would require additional space to be developed within the footprint there would be considerable added value with human tissue samples (from a range of clinical cohorts, some of which will be research consented post mortem material) being stored in an accredited environment and being used by local research groups. There may be an opportunity for NHS/CEC facilities to support academic facilities, and for new research equipment to be made available to NHS/CEC.

In this option a combined laboratory and consultant team could occupy a floor in any new building close to a combined mortuary facility to combine the storage, handling and processing of tissue material. The added advantage is that this would release space at WGH for use as clinical area and release space at RIE within labs for the predicted expansion of molecular diagnostics avoiding cost and patchy instrument and staff deployment.

Molecular Diagnostics/Genetics Services

A combined service for NHS Lothian would bring together molecular techniques from both the RIE site and the WGH into one building. This would enhance the use of the very similar and in some cases identical equipment, technologies and staff bases. This currently duplicated in places across NHS Lothian.

Section B – City of Edinburgh Scientific Services

Scientific Services undertakes a range of sampling, chemical and microbiological testing relating to food safety and standards, agricultural materials (such as animal feeding stuffs, fertilisers), drinking water, recreational water, air pollution, environmental materials (such as soil, dusts), health and safety (such as asbestos, legionella, radiofrequency emissions) and consumer goods (such as toys, electrical goods, cosmetics). Testing is carried out in support of the Council's statutory duties and operational responsibilities.

The Scientific Services laboratory is designated an Official Food and Feed Control Laboratory by the Food Standards Agency in fulfilment of its role under EU Regulation 882/2004, which harmonises food and feed controls across Europe. The Service is recognised by Scottish Government as an approved laboratory for testing drinking water. The Service also fulfils the statutory requirements to undertake asbestos-related inspection and testing functions.

The Service is accredited to ISO17020 and 17025 international standards for laboratory quality and competence. To maintain accreditation, the Service operates within a strict internal quality system and undergoes an annual 18 person-day, onsite inspection and audit by the United Kingdom Accreditation Service (UKAS), which is a Government appointed third party auditor.

The Service provides the statutory functions of Public Analyst, Agricultural Analyst and Food Examiner and other scientific services on a cost recovery basis to eight other Scottish local authorities: East Lothian, Midlothian, Scottish Borders, Highland, Orkney, Shetland, South Lanarkshire and West Lothian.

The service provides a sampling, testing and consultancy service to local and national businesses and private individuals. Several of these are contract won by competitive tender.

The service provides an auditing and testing service to the CEC Corporate Property and Housing functions of the Council to ensure that water supplied in 300+ council properties and rented accommodation complies with Health and Safety legislation and does not pose a Legionella risk. It also provides an asbestos surveying and air testing service to the Corporate Property function to ensure that council properties comply with Health and Safety legislation and do not pose an asbestos risk to users. The Service does similar work for Housing Property Services to ensure that the housing stock is safe for tenants and to protect workers engaged in refurbishment works, such as kitchen and bathroom upgrades.

A 24/7 scientific advisory service to assist Scottish Fire and Rescue Service eastern hub (Central, Fife & Lothian & Borders) in dealing with chemical incidents and suspected CBRN (chemical, biological, radiological and nuclear) incidents, as part of the National Government resilience programme.

Section C - Shared Services Opportunities

Mortuary Services

There is a requirement to have a respectful end of life care package within Hospital sites. This means that the storage of the deceased after death in hospital and the ability to view a body on site is essential. A single facility for post mortem processing and combination of CEC and NHS Lothian expertise is viewed by Forensic Pathology teams as a very useful collaborative approach to harness best value and provide workforce planning for the future.

The development of a single-site Mortuary which caters for all aspects of end-of-life care for the East of Scotland will enhance the reputation of both NHS Lothian and CEC. The new service will provide Scottish Government with a robust medico-legal facility that will improve the standard of service that COPFS are provided, both in the handling and storage of bodies, and in relation to the post mortem investigations

required. This will be of particular importance to Scottish Government, given the current ongoing criticisms of SFIU and their handling of death investigation across the country.

From a pathology perspective, the potential development of a forensic pathology 'centre of excellence' will increase the likelihood of long-term service provision and contract agreements, with increased possibilities of pathology recruitment from both within the UK and from overseas. At present, the service is under-staffed at a Consultant level throughout Scotland, and the pressure on those in post continues to increase as the demands of COPFS also increase.

Clinical Adjacencies

Forensic pathology services require not just post mortem examinations but access to support services. Currently post mortem CT imaging is done at RIE on selected cases, with bodies being transferred from CEC facility to RIE. In addition, histology services are mainly based at RIE site, as is clinical microbiology and clinical chemistry, with samples currently transferring between CEC mortuary and RIE. Co-localisation at RIE site would greatly facilitate sample processing.

Training

By developing a single mortuary facility with NHS/CEC/University support, there is a significant opportunity for cost recovery built around international training programmes in forensic pathology and forensic sciences. The service receives regular requests for training, funded by Governments mostly from middle and far East.

A single service would lead to a postgraduate MSc program, which would be extremely popular with overseas forensic pathologists in training, and which would benefit Edinburgh University in a number of ways including financially. There are opportunities for new and innovative methods of teaching being developed in a single-site facility.

Research

The development of a single-site would provide research opportunities, enhancing the reputation of both the forensic service and the University of Edinburgh/NHS Lothian, particularly as the involvement of molecular genetics in the development of significant disease becomes increasingly apparent.

Staffing

In this model, staff would be combined, but only those patients requiring post mortem processing would be moved to the new mortuary. This would allow for additional on site contingency body storage, shared equipment and a single management and quality system. The body store could be operated by non-pathology trained staff and the majority of relatives would view in the current hospital surroundings. This would represent a true rationalisation of mortuary processing provision across the city and beyond.

Major incident management

Allied to the improvement in quality of general service provision for Scottish Government, the development of a new large-scale mortuary facility will provide them with a further resource that can be used in the event of major incidents, similar to that already established at QERH in Glasgow. The development would be able to deal with the majority of incidents involving multiple fatalities, and would lend itself to the DVI (Disaster Victim Identification) approach to such eventualities that is now required when handling such an event. At present, there is no reasonable facility in the East of Scotland that could provide a robust response for anything other than a relatively small incident.

Current service footprint

NHS Lothian Mortuary

The NHS Lothian service consists of a single post mortem facility at RIE and an extensive network of body stores located at hospital sites.

A typical annual NHS Lothian post mortem work load is (2013-14 data)

Full adult	37
Limited adult	60
Paediatric	194
Brain	195
Referred brain	50
Total	536

NHS Lothian has Forensic services which are scheduled to move to plot Nine at BioQuarter in February 2016 consisting of ten staff including five consultant Forensic Pathologists and support staff.

City of Edinburgh Council Cowgate Mortuary

Currently NHS Lothian provides the forensic pathology autopsy service for the East Federation Death Investigation Unit of COPFS, which is delivered through the City of Edinburgh Council Mortuary on Cowgate. The current Crown contract agreement covers all Fiscal autopsies for Lothian and Borders, and all 'forensic' Fiscal autopsies for Central and Fife. Currently, about 1400-1500 actual post mortems are performed per year including 'view and grant' procedures. This equates to 1,700-1,800 cases per annum allowing for the two doctor autopsy system. It is considered likely that NHS Lothian will be asked to consider absorbing all other Central and Fife Fiscal autopsies – an additional 500 to 600 cases annually i.e. a workload of more than 2000 post mortems per year

Combined Mortuary Annual Post Mortem Capacity Requirement

NHS Lothian	550
of which paediatric	200
City of Edinburgh	1450
Current Total	2000
Potential additional East Scotland Fiscal	600
Total Design Capacity Requirement	2600

Microbiology Services

NHS Lothian and CEC both provide microbiology services, albeit these are on difference scales of delivery. If space is made available with the RIE site due to relocation of other NHS services then it is possible that both microbiology services could work alongside each other, benefiting from NHS Lothian technology, supporting services such as microbiology automation and MALDI-TOF identification technology.

The interplay between food water and clinical microbiology would be greatly enhanced around disease control associated with some of the major pathogens such as E.coli O:157.

Access to molecular techniques

In a combined service it is very likely that the access to molecular techniques required by NHS Lothian and CEC would be able to be shared.

Whole Sequencing

The Cooperative of Zoonoses Experience and Expertise (CoZEE) group held a meeting in November 2014 where representatives from various parts of the food chain such as seeds, animal production (vets), food testing and clinical examination discussed next generation/whole genome sequencing. It was clear that CEC Public Analyst/Scientific Services were falling behind as a paradigm shift was underway in this space. Some of the recent work CEC has done with incident management teams involving microbiological contamination of water and compost has had remarkable input from whole genome sequencing. But that has taken up to 6 months due to lack of easy equipment access. Discussions with the Scottish E. coli reference laboratory after the E. coli O104 outbreak in Germany revealed there is now a significant 3 to 5% non E. coli O157 STEC/VTEC in faecal samples. The most likely scenario for infection is eating contaminated food. But the level of food testing has been negligible in Scotland until now with Real Time PCR testing in Edinburgh starting. There are obvious synergies to be found in shared equipment usage to better leverage good patient and customer outcomes.

This shared service would provide capability and resilience to deal with another horse meat authenticity incident. During the horse meat issue Scotland and the UK lacked an available sequencing capability with samples being sent to one of numerous NGS molecular centres in Germany. Food Standards Scotland have indicated they are supportive of creation of a joined up clinical and food centre of excellence in Scotland. In England PHE have oversight of the clinical diagnostic laboratories, Food Water & Environment (FWE) laboratories and reference facilities such as Colindale. But the Public Analyst food chemical testing service is separate from the Food Microbiology in England.

Procurement and Quality

NHS Lothian has access to nationally agreed high volume based contracts for microbiology and chemistry supplies. CEC working from a smaller volume based procurement strategy could take advantage of a superior pricing strategy.

Procurement does not limit itself to consumables. There are additional adjacencies to service contracts for routine laboratory equipment such as centrifuges, pipettes, freezers and fridges across all combined services.

In addition NHS Lothian has across all sites the Gael Quality Qpulse Quality management system which is expandable to other services. In addition CEC has a large knowledge base in UKAS accreditation and there is potential for sharing expertise in helping NHS Lothian achieve UKAS ISO15189 accreditation.

Shared Common Equipment

Autoclaves

NHS Lothian on the RIE site has a large modern autoclave facility with two 6m² steam run autoclaves in a purpose built facility. This could obviate the need for the build of significant autoclave facilities in any new CEC building.

Electron Microscopy

NHS Lothian hosts an electron microscopy service which would be used by CEC for asbestos investigations who currently do not have this expensive technology. This would give greater public protection by identifying asbestos in difficult to test matrices or where asbestos is present at very low levels such as in some artex coatings.

Maldi-ToF technology

Availability of this technology on the campus would allow both services to identify organisms effectively to support their public health protection remits. Accurate and early identification of food pathogens is a key goal of Food Standards Scotland to protect public health and reduce the level of food poisoning.

Asbestos & Legionella Testing Services

Combining work on the same campus offers an opportunity for NHS Lothian to bring these services which CEC perform routinely back in house.

Section D – R&D opportunities

Histopathology and Molecular Diagnostics

The University of Edinburgh would be interested in investing in a human biofacility built around the mortuary/ human tissue laboratory facilities. While this would require additional space to be developed within the footprint there would be considerable added value with human tissue samples (from a range of clinical cohorts, some of which will be research consented post mortem material) being stored in an accredited environment and being used by local research groups. There may be an opportunity for NHS/CEC facilities to support academic facilities, and for new research equipment to be made available to NHS/CEC.

Section E – Commercialisation Opportunities

Both NHS Lothian and CEC provide microbiology services providing an opportunity to capitalise on joint working allowing CEC to expand microbiology services and testing onto a bigger commercial footprint. This will allow easier access to identification, PCR and automated microbiology facilities. For example Food Standards Scotland has a number of national sampling programmes ranging from £0.2m to £2.0m that could be accessed through joint working and collaboration. These arrangements may require setting up of a trading vehicle such as a Limited Liability Partnership (LLP) to address Teckal procurement issues.