The Scottish Parliament
Pàrlamaid na h-Alba

**Health and Sport Committee
Comataidh Slàinte is Spòrs**

Technology and innovation in health and social care

Report No. G/18/102

Contents

Health and Sport Committee

To consider and report on matters falling within the responsibility of the Cabinet Secretary for Health and Sport.

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Introduction

1.   At our meeting on 18 April 2017, we agreed to undertake an inquiry into both Technology and Innovation in Health and Social Care.

2.   Digital technology has the potential to change the face of health and social care delivery. We want to find out what is being done to realise that potential and to build a picture of how innovative an NHS we can expect to see in 10 years' time.

3.   We wanted to understand the key opportunities in innovation and the use of technology in health and social care over the next 10 years and the extent to which this will lead to significant change how services are managed and delivered. We had identified that technology and innovation could help deliver a more efficient, responsive and patient-centred health and social care service. We wanted to see progress had been made and what barriers still exist in Scotland and identify potential health and economic benefits.

4.   Our inquiry proved timely, allowing us to consider the Scottish Government's draft digital health and social care vision and look forward to their forthcoming strategy.

5.   We issued a general call for written views seeking views on the successes and failures of existing telecare and telehealth strategies and the opportunities future developments might present. We also wanted to hear about barriers to innovation in health and social care. We received 81 responses in total. SPICe colleagues produced a summary of written responses.

6.   This was followed by oral evidence at three meetings. We heard from stakeholders on 3 October and 31 October and then on 7 November we took evidence from the Cabinet Secretary for Health and Sport.

7.   On 21 November, following the evidence session on 7 November we received a letter from the Cabinet Secretary for Health and Sport providing further information on electronic patient records.

Strategies

8.   Two principal Scottish Government technology strategies have preceded the forthcoming three year Digital Health and Social Care Strategy (The Digital Health and Social Care Strategy), which is expected in spring 2018, and these were of significant interest to us and stakeholders.

Digital Strategy

9.   In March 2017 the Scottish Government published A Digital Strategy for Scotland in March 2017. This aims to "ensure that Scotland is recognised throughout the world as a vibrant, inclusive, open and outward-looking digital nation". It also comments "The Scottish Government will create the conditions which encourage continuous innovation and improvement in our public services".

Health and Social Care Delivery Plan

10. The Scottish Government's Health and Social Care Delivery Plan, published December 2016, noted:

   "Digital technology is key to transforming health and social care services so that care can become more person-centred. Empowering people to more actively manage their own health means changing and investing in new technologies and services, by, for example enabling everyone in Scotland to have online access to a summary of their Electronic Patient Record. The time is right to develop a fresh, broad vision of how health and social care service processes in Scotland should be further transformed making better use of digital technology and data. There is an opportunity to bring together all IT, digital services, telehealth and telecare, business and clinical intelligence, predictive analytics, digital innovation and data use interests in health and social care".

11. Whilst our report focusses on the Scottish Government's Draft Digital Health and Social Care Vision and the upcoming Digital Health and Social Care Strategy the earlier Digital Strategy for Scotland and the Health and Social Care Delivery Plan are integral to the new strategy's success. The Delivery Plan sets out how the Scottish Government aims to transform health and social care services and these themes are looked at in our report. The Digital Strategy for Scotland sets out the foundation for a change that without we will not have the infrastructure to make the desired changes and again the themes run through our report.

12. During the inquiry we found technology in health and social care diverged into two distinct albeit related areas. The first is IT and systems and the need for them to work, and work together. The second area was the use of technology to transform the way medicine is practiced and delivered to patients. This could be through new gadgets that are used in surgery or monitoring devices that can be used by patients at home. Although technology split into two different contexts they are both required to operate an efficient and effective health and social care service. We see both as being required to transform the health and social care service so a move can be made away from secondary care. Innovation permeated through all aspects of the inquiry, whether IT related or fresh ideas on new ways of working.

Success of previous strategies

13.   The following sections of the report will take a brief look back at the successes of the previous strategies. We will then consider the Scottish Government's draft vision for health and social care 2017-2020 and then focus on the forthcoming strategy and what we believe should be included in it.

14.   Many responses to our call for views noted the Scottish Government has been following an appropriate strategic direction and some noted the approach taken in Scotland has received international recognition. [1] The willingness to approach new ways of working and having a strategy for Scotland and not just for the Scottish Government were praised.

15.   Edinburgh Medical School noted the 2014-17 strategy was ambitious, and although some targets had been missed, progress had been made in a number of areas. [2] Chest, Heart and Stroke Scotland noted existing strategies have led to exploration of digital solutions for health and social care services which are particularly valuable in remote or rural communities. [3]

Communication and leadership

16.   Many submissions welcomed the establishment of the Digital Health Institute and the Scottish Centre for Telehealth and Telecare . Improvements in the delivery of national programmes of work were also noted with improved communication, visibility and oversight coming from the e-health Strategy Board.[i] The contribution of the Clinical Change Leadership Group [ii] was also noted.

17.   We heard that previous strategies have supported people to manage their own health and wellbeing and interact with NHS Scotland and their GPs. The Royal Pharmaceutical Society in Scotland commented there have been successes "resulting in improved patient journeys, better use of skills mix and sharing of essential information between health professionals" such as direct referral service for community pharmacists to out of hours and NHS mail. [4]

18.   Many were supportive of the Technology Enabled Care Programme (TEC), which aims to resource evidence-based interventions and develop the infrastructure to implement successful, evidence-based eHealth solutions at scale. Argyll and Bute Health and Social Care Partnership (HSCP) commented the TEC programme has enabled it to try different ways of working including integrating their telecare and home health monitoring service together and testing new technology. [5]

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[i] The eHealth Strategy Board aims to ensure the alignment of eHealth Strategy with key policy statements.

[ii] The Clinical Change Leadership Group (CCLG) was established to bring together senior clinicians from across NHS Scotland, who are involved in eHealth and who provide clinical advice to the national eHealth Programme Board.

Telehealth

19. Various submissions saw programmes such as the Telecare Development Programme and redesign of NHS inform and NHS24 infrastructures as being successes from previous strategies.

20. Developments in telehealth/ telecare, video conferencing and virtual clinics were welcomed by many. The benefits of using telemedicine for people living in remote and rural communities, including the islands, were highlighted by Parkinson's UK in Scotland. [6] NHS Dumfries and Galloway highlighted the benefits of telehealth such as reducing staff travel time, patient travel time and improved supervision and support for remote and island clinicians. [7]

21. Specific examples highlighted to us, were monthly respiratory consultant/specialist nurse virtual clinic consultations between Caithness General Hospital and Raigmore in Inverness [8] and work in Argyll and Bute where obstetrics patients are able to remotely "attend" the consultant clinic and remotely link with their midwife.

22. Telehealth and telecare were seen by the Royal College of Emergency Medicine Scotland as one way to reduce emergency hospital admissions. They note home monitoring can improve outcomes and decrease hospital admissions for patients with diabetes, hypertension and heart failure and chronic obstetric pulmonary disorder (COPD). [9]

23. We applaud these initiatives and seek to build upon these in the later part of this report.

Health data and electronic records

24. Of great interest to us was data recording and the sharing of information.

25. The Farr Institute, SPIRE (GP data) and the Scottish Health Research Register (SHARE)[iii] were highlighted as developments in health data. The ability (and future) potential to link data at patient level from different sources was seen as a key strength along with the ability to share data across sectors and services.

26. Advances in data sharing were also recognised. There have also been developments such as access to the Key Information Summary and the emergency care summary and electronic referrals to hospital. The PACS system which centralised x-rays and CT scans was also highlighted.

27. We note and welcome the changes proposed in the new GP contract to make the GP and health board joint data controllers.

[iii] The Scottish Health Research Register is a register of patients willing to allow their data and spare blood to be used to identify them for research projects and anonymised genetic research.

Draft Digital Health and Social Care Vision 2017-2020

28. In advance of the Scottish Government finalising their Digital Health and Social Care Strategy they have published a draft vision. The draft vision was produced in consultation with a wide range of stakeholders with the intention that general views, ideas and feedback from the vision will help shape the final strategy.

29. The draft vision for the new Digital Health and Social Care Strategy notes:

"As a citizen of Scotland: I have access to the digital information, tools and services I need to help maintain and improve my health and wellbeing. [10] I expect my health and social care information to be captured electronically, integrated and shared securely to assist service staff and carers that need to see it, and that digital technology and data will be used appropriately and innovatively to help plan and improve services, enable research and economic development and ultimately improve outcomes for everyone." [11]

The new Digital Health and Social Care Strategy is now due for publication in spring 2018.

30. The draft vision sets out its intentions to:

- Move from organisational-centred developments and architecture to placing the citizen at the centre;

- Make better use of data –both health & social care and citizen-generated –for decision support, service delivery, planning and research;

- Start to develop digital ecosystems around the individual, home & place;

- Create a permissive culture through improved leadership, workforce development and rebalancing our approach to risk;

- Foster a fertile environment for innovation and economic growth;

- Contribute to social care reform and supporting delivery of health & social care integration;

- Build on what we have, and spreading what works;

- Use guiding principles such as Citizen-centred; Data-Driven; Flexible; Familiar; Facilitative; Innovative; Safe & Efficient; Open.

Response to the draft vision

31. Our call for views sought responses on how well the Scottish Government's draft vision addresses the future requirements of the NHS and social care sector and whether there were any significant omissions in it.

32.   Justene Ewing[iv] commented the vision is appropriate, realistic and safe but "doesn't address some of the very tough challenges and decisions that need to be made" and is limited in its potential ambition. [12] National Services Scotland thought the vision "appears to take a safe approach and stops short of making any tough decisions about priorities, funding trade-offs, architectural platforms or on the level of convergence required to support transformation objectives". [13]

33.   The Digital Health and Care Institute considered the draft vision was not definitive or strong enough in its wording. They wanted it to address the core barriers and opportunities around data sharing to support real progress over the coming years. [14]

34.   More generally, some considered the vision should also specify how it links to and supports the realisation of the Health and Social Care Delivery Plan and major strategies such as Realistic Medicine.

35.   We pick up some of these general themes in the next section.

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iv Justene Ewing is the former Chief Executive Officer of the Digital Health & Care Institute

Developing the Digital Health and Social Care Strategy

36. The strategy aims to be person-centred, make better use of data, be innovative and contribute to social care reform.

37. Our call for views also sought responses on what key opportunities exist for the use of technology in health and social care over the next 10 years, what actions are needed to improve the accessibility and sharing of the electronic patient record, and views on what the barriers to innovation in health and social care are. The following sections look at some of the areas highlighted to us in more detail, and contain our recommendations on what should be covered in the strategy.

The need for a national approach

38. A number of submissions highlighted to us a disconnect between Scottish Government strategies and local delivery. This was considered by some to have contributed to slow adoption of mobile devices and medical technologies.

39. Some respondents felt variations at NHS board level hampered the delivery and implementation of the eHealth strategies. The Information Commissioners Office (ICO) noted the implementation of strategies has been impacted by an imbalance of decision making between technical leaders and clinical leaders. [15]

40. Edinburgh Medical School advised "Different information governance policies across Scotland's 14 health boards has led to a piecemeal approach to implementation. There should be a national IT governance policy". [16]

41. The Scottish Social Services Council suggested current eHealth and telecare strategies are predominantly clinical and health orientated and would benefit from a greater focus on social service and social care. [17]

42. We believe there are a number of services which should be delivered from the centre more efficiently, balancing cost and quality, on a "once for Scotland" basis. We consider services which fall into this definition include those which would benefit from:

- simplified and standardised delivery

- increased compliance and consistency

- improved quality of service and support for staff

- improved customer service

- greater opportunities for sharing good practice, skills and expertise

- improved reporting and management information

- cost efficiencies through economies of scale

43. The Scottish Lifesciences Association, commented:

> The current approach leads to siloisation. We are a tiny country. The NHS in Scotland looks after a population that is smaller than that of Yorkshire, and the current approach is not optimal, at least in terms of the uptake of new technology.

Source: Health and Sport Committee 03 October 2017, John Brown, contrib. 238[1]

44. Parkinson's UK noted decisions to release the majority of funding to NHS boards has led to significant inequalities in the provision and coverage of eHealth across the country. [18]

45. We note a disconnect between Scottish Government strategies and local delivery and unwanted variation between NHS boards. We would welcome information on how the Scottish Government intends to move towards a national approach for technology and innovation and information on how this will incorporate social care.

46. We also recommend the Scottish Government takes a "once for Scotland" approach to the implementation of its forthcoming Digital Health and Social Care Strategy. The responsibility for the success of this Strategy lies with the Scottish Government and as such they must take the lead strategic role in its delivery.

Implementation

47. NHS National Services Scotland noted the strategy needs to make explicit choices on "how" delivery will be enabled. They commented it should be clear and be specific around IT infrastructure/platform strategy, digital patient engagement, internal digital workplace, data analytics, research/academic support, new innovation and integration, IT/eHealth workforce. [19]

48. Scottish Health Innovations Ltd explained it would be useful for the vision to include a narrative of how it is going to be actioned both internally and externally. [20]

49. The ALLIANCE advised the lack of a business plan to support the implementation of previous eHealth strategies has hindered the delivery these strategies. They gave an example from the previous strategy of an aim for at least 90% of GP practices to offer online booking of appointments and repeat prescription ordering by 2017. However, there was no detailed plan to accompany this and it appears in the absence of any measurements this target will not be met. [21]

50. The Scottish Government in evidence to the Committee acknowledged the absence of an implementation plan for the previous strategy. They confirmed that its intention was to have a national governance group for its forthcoming Digital Health and Social Care Strategy. Geoff Huggins, Director for Health and Social Care Integration at the Scottish Government detailed this group would monitor implementation of the strategy according to clear milestones. [22]

51. We are pleased to hear there is an intention to include an implementation plan within the strategy. This is essential to ensure progress is made in delivering technology and encouraging innovation within health and social care.

52. We recommend the implementation plan include proposals on how delivery of the areas noted above by NHS National Services Scotland will be met.

Engagement

53. Meaningful engagement with all stakeholders is a necessary requirement for any successfully strategy. We were therefore disappointed this was a criticism of previous strategies.

54. The Royal Pharmaceutical Society in Scotland noted a lack of communication and engagement with all relevant stakeholders was a failure in existing strategies. [23] The Mental Health Foundation commented there needs to be considerable work to create a more enabling policy environment for NHS and allied staff. They also note patient and clinical engagement remains low. [24]

Person-centred

55. The draft vision intends a move from organisational-centred developments and architecture to placing the citizen at the centre.

56. We were advised most were supportive of the aspirations in the draft vision around placing the citizen at the centre and various suggestions were made about who should be involved. Chest, Heart and Stroke Scotland note the draft vision needs to reflect a move towards care in the community, supported self-management and more effective communication between sectors and professionals. [25]

57. We heard there needs to be more reference to patient and citizen groups and involvement of people with lived experience. Concerns were raised by medConfidential and the Open Rights Group that the vision statements fail to position the individual at the centre of the NHS. They believe that a truly person-centred approach would be to empower patients to control their own information. [26]

58. Mydex CIC commented that the "Scottish Government's strategy and Parliament's legislation continue to take an organisation-centred approach to health and care". [27]

59. Whilst we agree a person-centred approach is required we are clear of the need to ensure identifiable medical data is always protected from commercial use.

60. NHS National Services Scotland noted other perspectives need to be considered including those from health and care delivery organisations and from enterprise, research and innovation organisations. [28]

61. We were advised the role of the independent sector and carers should be considered along with more reference to social care and third sector. The Care Inspectorate noted:

> It is not just about ICT systems that are in use in health boards, or indeed in the 31 integration authorities. There are some 4,000 individual care service providers for adults across Scotland, and those organisations are commissioned by integration authorities but are not part of integration authorities.

Source: Health and Sport Committee 31 October 2017, Rami Okasha, contrib. 39[2]

62. The ALLIANCE echoed the need for a person-centred approach, advising that people who access the services also need to be at the heart of the process. They believe this results in solutions being identified that address real rather than perceived needs. [29]

63. The importance of co-design of services is an issue that has been raised with us in other inquiries we have conducted. In both our reports Looking ahead to the Scottish Government Health and Sport Draft Budget 2018-19: A call for greater transparency and Are they involving us? Integration Authorities' engagement with stakeholders we raised concerns about lack of engagement by integrated joint boards with their stakeholders.

64. We noted:

> Stakeholders are not embedded in decision-making processes across all IAs and at all stages in determining the approach taken to delivering local services. This must be improved.

Source: Are they involving us? Integration Authorities' engagement with stakeholders

65. Engagement is required for the successful implementation of any strategy. We note the vision seeks to place the citizen at the centre and expect the Scottish Government to engage with all relevant stakeholders, including service users, clinicians and the social care sector. We would welcome details on how Government plans to develop their engagement strategy and how they are going to ensure the citizen is at the centre from conception to implementation.

66. We believe it is imperative a person-centred approach should empower patients to control their own information, including how this is used. We would welcome information on what action the Scottish Government is taking to allow people control of their own information.

67. With the move to integration authorities and a vision for a move to community based care it seems both logical and imperative that a single information governance system must include social care organisations and hospices. Can the Scottish Government advise how they intend this to happen?

Leadership and Innovation

68. We heard of a need for more focused and firmer leadership to drive change. NHS National Services Scotland commented that leadership is required, at all levels, which fosters a true co-design/co-production environments and breaks down the

barriers between organisations and budgets. [30] Diabetes Scotland note there has been a lack of forward planning at both national and health board level. [31]

69.   During evidence we were advised by the Scottish Government of the creation of a new role - the Chief Clinical Information Officer. They advised the role "will be the pinnacle of how we disseminate standard practice and try to get this once-for-Scotland approach deployed in a truly once-for-Scotland way." [32]

70.   The Cabinet Secretary for Health and Sport further advised:

> The chief clinical information officer will be, if you like, at the pinnacle of driving these changes forward; they will play a strategic role in driving the strategy forward and making sure that there is pace to its delivery.

Source: Health and Sport Committee 07 November 2017, Shona Robison, contrib. 37[3]

71.   The proposal to have a Chief Clinical Information Officer/ Clinical Director of eHealth was welcomed by NHS NSS. [33]

72.   The new role of a Chief Clinical Information Officer seems to be a positive step forward. We would be grateful if the Scottish Government could provide further information on the role including, how many posts will be created, how the post will operate in relation to lines of accountability and where the post will sit within the NHS.

Culture and Trust

73.   Another issue raised by witnesses during discussion of the future strategy was the suggestion there may be cultural barriers to the successful development and implementation of a new strategy.

74.   The Royal College of Emergency Medicine noted "innovation is most often characterised by creativity, lack of scale and significant risk of failure. This means individuals must be encouraged and empowered to be innovative and failure must be tolerated, and indeed welcomed, as integral to ultimate success". [34]

75.   The Care Inspectorate commented there appears to be reluctance and resistance in some partnerships to adopt technological innovations. [35] This was also identified by Alzheimer's Scotland who considers there is cultural resistance within partnerships to embrace technology and innovation to support and facilitate patients who want to use technology enhanced care to self-manage their long term conditions. [36]

76.   The Mental Health Foundation also noted a pervasive risk adverse culture which they believe represents a real barrier for new technologies. [37] NHS National Services Scotland advised "we should be comfortable with failure as not everything will evaluate successfully through an innovation process". [38]

77.   Scottish Health Innovations Ltd believes existing strategies have "missed the opportunity to effectively promote innovation as a core activity within NHS Scotland and recognise the entrepreneurial talent within our health service and the drive of innovation from within". [39]

78.   During this inquiry we have heard of a reluctance to adopt new ways of working in the NHS, with staff worried about reprisals should they fail or worse, in some instances, for simply challenging the established order. We believe it is essential the new strategy encourages and empowers risk taking. This is the only way real change in the way technology and innovation is viewed, rolled-out and accepted will occur. Can the Scottish Government advise how the strategy will encourage a more enterprising spirit and innovative culture in the NHS and social care towards technology and innovation and encourage widespread acceptance and uptake?

79.   Clinician buy-in is essential to the success of any new technology or innovation. Given this can the Scottish Government please advise how they plan to ensure such buy-in both with the development and delivery of the strategy?

Lack of scaling up

80.   We were advised there is currently a lack of a strategic approach to technology and innovation within the NHS and social care. Issues were raised with us around the adoption and spread of new technologies, in particular medical devices.

81.   A key theme which emerged in evidence related to difficulties scaling-up new technologies and rolling out projects across Scotland. The issue appears to be one of limited uptake of technology enabled health and social care initiatives and a lack of deployment at scale.

82.   Highland and Island Enterprise noted "to date there has been a low level of large scale innovative technology deployment and commercial return within the NHS. It is generally accepted technology is widely available and is not a barrier. The challenge is to provide better access and progression for SMEs through the commercial, procurement, health economics and eHealth phases to enable scalable deployment within the NHS". [40] This view was echoed by PA Consulting and Crohn's and Colitis UK .

83.   The Royal College of GPs Scotland commented it is often the case best practice is not developed and adopted across the board whilst Community Pharmacy Scotland advised innovative projects do not often get scaled up beyond board level despite being clearly suitable for national roll out. [41]

84.   NHS National Services Scotland believes there is not enough focus on scaling up and widespread adoption and they commented there would be benefits of allowing a default "opt-out" position rather than a default "opt-in" when successful innovations are identified. [42]

85. Perth and Kinross HSCP noted "at times there has been a lack of clear direction from the centre. With too many people trailing, piloting or conducting tests of change and not much seems to be collated and rolled out as a national initiative". [43]

86. The Royal College of Emergency Medicine (RCEM) commented there has been limited uptake of technology enabled health and social care initiatives. [44] This view was echoed by South Lanarkshire HSCP who stated that lack of deployment at scale and programmes demonstrating best practice/ outcomes have not been advanced/ adopted widely. [45]

87. Edinburgh Medical School commented that telecare has been shown to be effective in the management of congestive cardiac failure and diabetes but progress in implementing technologies for these conditions have been limited and patchy. [46]

88. Strathclyde Institute of Medical Devices commented "I think we are very bad at implementing our own technology in Scotland". [47] Professor Thuemmler[v] added "what is lacking is a comprehensive policy approach in Scotland…we have a very difficult process for trialing such new technologies and implementing them, and that has economic implications". [48]

89. We note in the NHSScotland's Chief Executive Annual Report 2017-18 an example of innovation and technology:

> An example of the potential for remote monitoring is provided by NHS Lanarkshire. A 90-day test of change ran from March-May 2016...The study demonstrated that remote monitoring of blood pressure improves efficiency and supports clinical decision-making. Most people find it easy to use and would use it again if required. Fifteen months after the 90-day test started, the pathways remain intact with around 1,000 patients benefiting in total. A further analysis of the 820 patients who had used the service estimated that the number of clinical contacts avoided was over 3,200.

> Source: NHSScotland Chief Executive's Annual Report 2016-17 pg 36

90. The report provides an excellent example of good innovation and technology in the NHS showing the possibility of freeing up a great deal of clinicians time. However, it does not indicate whether this successful pilot was rolled-out elsewhere.

91. One of the other reasons suggested for the lack of scaling-up was that at present any new technology or innovation requires to be adopted on a board by board basis - 14 or 22 times.

92. We were disappointed to hear of the difficulties encountered when scaling-up new technologies and rolling out projects across Scotland. We would welcome information on how the Scottish Government envisages the shift to a national strategic approach.

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v Prof Christoph Thuemmler is a Professor at Napier University, Edinburgh

> 93. Under a "once for Scotland" approach we recommend a default "opt-out" position when successful innovations are identified, as suggested by NHS National Services Scotland.

Medical Devices

94. New medical devices were a specific area where the issue of lack of scaling up was raised. A small number of new devices go through an assessment with the Scottish Health Technologies Group (SHTG) however once approval is granted it is up to the developer to go to each NHS board to sell this.

95. Scottish Lifesciences Association stated:

> Even if a company has SHTG endorsement or a big green tick from the innovative medical technology assessment, it still has to sell most products board by board.
>
> Source: Health and Sport Committee 03 October 2017, John Brown, contrib. 289[4]

96. NHS National Services Scotland advised:

> A new piece of technology is normally picked up by clinicians. If a national organisation is involved, technology has a better than average chance of being adopted, but governance of the adoption of new technology is, by default, at the board level.
>
> Source: Health and Sport Committee 03 October 2017, Andy Robertson, contrib. 230[5]

97. We were also made aware that even once a device has been adopted by the NHS there were still issues in the deployment of the device. Scottish Lifesciences Association advised:

> Where we find a barrier is after that, even when the NHS has bought a new device. We have specific examples of that barrier; in one case, NHS procurement bought 30,000 devices that were better for patient outcomes and cheaper than existing products, but then they were put in a warehouse in Lanarkshire and there was silence.
>
> Source: Health and Sport Committee 03 October 2017, John Brown, contrib. 179[6]

98. We were told the innovation support landscape is confusing for innovators from the third and private sectors. The Alliance advised there was a need to join up and demystify the innovation support landscape. They commented it could be difficult for innovators to understand and navigate the landscape so they can identify and apply for relevant funding/support for their innovation. [49]

99. Justene Ewing noted "there has been no recognition of the process of adoption and scaling of digital health and care solutions" she goes on to suggest that there should be "one front door to innovation through organisations like NSS". [50] NHSNSS also noted there is a "lack of a named body accountable for the rapid scaling up of successful innovative technologies". [51]

100.   Having heard the need for a central body with responsibility we were surprised to hear the following from Strathclyde Institute for Medical Devices that although it had produced a full business plan for a National Centre for Medical Technology this had not been implemented. It explained that the Scottish Enterprise and the Scottish Funding Council had: "declared a lack of funds available for this sector". Strathclyde Institute for Medical Devices added that the "response from Scottish Enterprise to Medtech Sector needs has been directed mainly at increasing exports not investment in the innovation pipeline." [52]

101.   A further issue that was suggested as adding to the problems with embedding technology in the NHS was clinician buy-in. We were advised that even if a product has gone through assessment and shown to be cost reducing if clinicians did not want to adopt the technology it would not happen.

102.   Strathclyde Institute of Medical Devices advised:

> I have to say that we tend to get kick-back from front-line clinical people. That is partly because digital medicine, e-health and personal monitoring are very challenging. They challenge both the clinician and the patient—and they monitor both, too. If a community group tries to introduce something without having a mandate for doing so and several nurses in the group do not want to use it, it will never be adopted. There will be no uniformity, and it will be very difficult for that group to get the business change mechanism.

Source: Health and Sport Committee 03 October 2017, Professor Connolly, contrib. 203[7]

103.   Scottish Lifesciences Association agreed clinician buy in was a barrier at present:

> There are two barriers, one of which is called clinician autonomy: the doctor can take the decisions that she or he thinks are the right ones for the patient, no matter what. You might say, "This new way of doing it is much better and it costs half as much", but the doctor might say, "That doesn't matter. This way works, I know it works and I am not going to change my mind." That is not an insurmountable barrier, but you have to know that it is there in order to work out how to get past it.

Source: Health and Sport Committee 03 October 2017, John Brown, contrib. 264[8]

104.   The majority of those who gave evidence believed having some level of national strategic approach to the commissioning and distribution of new technology would help alleviate these issues, with the Scottish Government having a level of oversight. Witnesses felt such oversight and guidance would help boards understand the benefits of new technology and how it could benefit them. It was also believed national guidance would ensure parity in boards and for patients across the country.

105.   Professor Thuemmler noted:

> In my opinion, what is lacking is a comprehensive policy approach in Scotland

Source: Health and Sport Committee 03 October 2017, Professor Thuemmler, contrib. 178[9]

106.   Scottish Health Innovations Ltd noted:

> 🔹 Attacking this more at national level might lift some of those barriers.

Source: Health and Sport Committee 03 October 2017, Elaine Gemmell, contrib. 200[10]

107. We were pleased the Scottish Government recognised this issue and agreed a national approach was required. The Cabinet Secretary for Health and Sport advised:

> 🔹 we need to move away from doing things 14 or—if we include the national boards—22 times. We need to move from board-level implementation towards a once-for-Scotland national system. We are looking at how we do that and the implementation plan will set that out, but it may require the Government to do more from a strategic point of view, and that may mean that we hold more of the resources in order to be able to do that on a once-for-Scotland approach.

Source: Health and Sport Committee 07 November 2017, Shona Robison, contrib. 11[11]

108. Another way it seems possible to help the adoption and spread of medical devices would be to have this included in a strategy. We understand a group was set up by the Scottish Government in 2016 to devise a Medical Devices Strategy for NHS National Services Scotland[vi]. We understand that work was undertaken with IRIC, SHTG and industry representatives, although a strategy has not yet been published.

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109. The introduction and implementation of proven medical devices appears to be over complicated. We would welcome information on the medical devices strategy and whether it will be incorporated into the digital health and social care strategy.

110. We would also welcome information on what consideration the Scottish Government has given to the establishment of a central body to co-ordinate technology and innovation.

Funding

111. In a time of tight finances, some were concerned by the lack for funding of technology and innovation. Concerns around investment and resources were raised. There is a need for both funding and a cohesive Scottish wide framework. The dispersion of eHealth finances to local level was considered by some to have made it difficult to direct the necessary finance/resource at larger projects and the separation of budgets and lack of integration/ co-ordination was believed to have resulted in siloed services.

112. Tensions have also been identified between routine activities and innovation. The Digital Health and Care Institute notes the "eHealth leads have operational responsibility for maintaining a complex set of legacy systems. The strategies and

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vi file:///C:/temp/
Sara%20Davies%20Development%20of%20a%20Medical%20Device%20Strategy%20(1).pdf

developmental work around digital health and care place an unrealistic demand on this group to lead and progress next generation digital infrastructure, when they are barely resources to maintain the status quo". [53]

113. NHS National Services Scotland advised "we put 2 per cent of our NHS revenue into IT, but the US, where Apple and some of the bigger companies are, is at 6 per cent and above. In general, we are struggling to keep the lights on with the complexity that we already have. Innovation brings another layer that will need to be funded and supported from a change management point of view". They went on to further note "It [funding] inevitably needs to increase... We are at the stage at which you have to invest more in IT to get returns in your business. That is not to say that the NHS has to spend more, but I think that we have to spend more on technology and innovation in order to fund the service transformation that has to take place. [54]

114. Parkinson's UK in Scotland note "In addition to wider funding issues in the NHS, there are major issues with funding for technological support." [55]

115. The Scottish Partnership for Palliative Care commented there is "often insufficient resources to manage periods of transition from old ways of doing things to new ways (e.g. where there is a time lag between investment required to innovate and eventual payback/saving)". [56]

116. The Scottish Government also advised some details on the proposed funding process for the strategy:

> We are re-prioritising existing spend in order to be more effective with that and, if more spend is required to deliver the strategy, we will set that out as part of the budget process.

Source: Health and Sport Committee 07 November 2017, Shona Robison, contrib. 53[12]

117. In relation to funding and the need for budgetary control changes to implement any change Scottish Lifesciences Association noted:

> One idea with which we have toyed is that boards should be given, dare I say it, an aspiration—I will not use the word "target". Somehow or other, the adoption and spread of innovation should be part of what boards are expected to do and, if they do not do it, questions should be asked. At the moment, that does not really happen.

Source: Health and Sport Committee 03 October 2017, John Brown, contrib. 264[8]

118. We have concerns about the absence of financial information on how the strategy will be funded. We recognise spending will require some re-prioritisation, however it seems clear that initially additional transformational funds will be required. We recommend a financial framework accompanies the strategy and would be grateful if the Scottish Government would advise how it intends to fund transformation.

University collaboration

119.	Collaboration with Universities is common in many fields however we heard this link has not been used as extensively as the sector would like in relation to innovation and technology.

120.	Professor Theummler advised

> We need to somehow build those collaborations with the skills that we have in Scotland. We have excellent universities with departments that have skills that could be more than useful to development and implementation but we are not making enough use of those skills and resources that we have. It is important that we bring together the resources and skills that we have in Scotland to manage the processes.

Source: Health and Sport Committee 03 October 2017, Professor Thuemmler, contrib. 263[13]

121.	The Strathclyde Institute of Medical Devices believed there was a need for better funding of university collaboration, advising:

> I would ensure that the innovation pipeline from university through to the NHS is properly funded, as the university end, in particular, is neglected.

Source: Health and Sport Committee 03 October 2017, Professor Connolly, contrib. 297[14]

122.	Collaboration with universities, and other organisations outwith the NHS, can only enhance knowledge and production of technology and innovation. We would be grateful if the Scottish Government would advise its approach to enhancing and delivering such co-operation.

Data Sharing

123.	As well as the issue of development and implementation of technology a central strand to our inquiry was the huge variation in the systems for recording data within NHS Scotland. For example, mental health, primary care and maternity services use different programmes to record and access patient information.

124.	Probably without exception in every inquiry and piece of work we have undertaken the sharing of data has been raised as both a barrier and an impediment. From prisons to pharmacists, from GPs to emergency care we have heard about the inability to share data. Frustrations are widespread across health and social care, many based on peoples understandings of lack of understandings of data protection rules.

125.	A common ask was for all registered health professionals directly involved in patient care to have appropriate read and write access to a patient's health record and that any new digital strategy enables appropriate information sharing. The Royal College of GPs Scotland note there has been a "real failure" to move on from the continued use of multiple incompatible systems and various platforms used across the NHS. For example, GP systems are not compatible with those used by district nurses". [57]

126. During our inquiry into Healthcare in Prisons a constant theme was concerns about the IT system used in prisons. Virtually every person we spoke to and many submissions highlighted concerns about the lack of a comprehensive clinical information system providing access to records. Provision in prisons was described as being "not fit for purpose".

127. The Information Commissioners Office (ICO) cautioned that access by third parties to the patient record must be on a need to know basis with each request justifying why access is necessary. Consideration must be given as to whether the patient is to be contacted at each such request to provide their consent or whether one of the other conditions for processing is to be relied upon.

128. However, it should also be noted the ICO advised during oral evidence:

> That the legislative framework is set up to allow for the free movement of personal information. A lot of our work in Scotland, particularly in health, involves saying to people, "Can you share? Yes, you can." The Data Protection Act 1998 is a framework for safe and secure sharing of information; it is not the barrier that a lot of people think that it is.

Source: Health and Sport Committee 31 October 2017, Maureen Falconer, contrib. 26[15]

129. We heard that linking and access to information systems remains a key issue for most front line staff. We also heard problems with developing electronic records and data sharing. It was noted, despite improvements in secondary care, progress in sharing data is still slow and lags well behind most industrial countries.

130. The Care Inspectorate commented it is the norm that health staff do not have access to individuals' social care records and vice versa. They note social work and social care staff "constantly express the profound hope that health and social care integration and the creation of Health and Social Care Partnerships would generate significant improvements in joining access to records and electronic information sharing generally". [58]

131. The Royal College of Emergency Medicine noted the Scottish Government has a significant opportunity to improve patient record sharing across health and social care systems. They believe integrating all NHS systems will allow NHS professionals to provide patients with appropriate care and after care in a timely fashion and improve communication and the integration of services. [59]

132. Chest Heart and Stroke Scotland noted the full integration of health and social care needs underpinning by the joining up of data between (and within) the two systems and better recognition of the role the third sector plays in providing health care and support. [60]

133. Justene Ewing agreed and believes:

> Access to data and the information governance issues must be addressed, with inconsistent and often misaligned understanding of the 'rules' creating distinct disadvantages in progressing innovation and the ability to enable deep and meaningful insight across the system which empowers leadership teams and professionals to deliver deeply enhanced outcomes and for patients to experience significant improvements in outcomes [61]

134. Whilst many of the issues arose from concerns around data protection some of them were as a result of systems in different areas of health and social care not being compatible or direct access to all not provided.

135. For example, the Royal College of Emergency Medicine explained that in Ayrshire they had only received access to the portal system in the past 12 months whilst Glasgow had had access for some time before this. They explained in an emergency department it was "invaluable to have access to the most up-to-date clinicians' opinions, the emergency care summary and the KIS. It is much faster and that is better. Has everywhere that needs it got it? Not everywhere has." [62]

136. The Royal Pharmaceutical Society of Scotland advised:

> Pharmacists can access the emergency care summary, but they have to do it through NHS 24; there is no direct access even though that has been promised since 2014. We have to phone NHS 24 to gain access and often there are extra phone calls, which cost extra time. We have lobbied for a long time on that point.

Source: Health and Sport Committee 31 October 2017, Aileen Bryson, contrib. 42[16]

137. The Digital Health and Care Institute commented that guidance only goes so far. They go on to note "other governments have mandated and resourced more comprehensive common data exchange and integration approaches that have allowed them to accelerate beyond Scotland when it comes to realising the benefits of broader data sharing". [63]

Interoperability

138. We were advised there was a view current strategies have failed to create NHS wide interoperability standards which would allow the seamless integration of a large number of devices and allow larger patient autonomy. Justene Ewing noted there has been limited success in relation to interoperability and the current strategy fails to recognise the emerging consumer digital health markets and the ability to make use of the data and information many citizens have readily available within their own control. [64]

139. We did hear interoperability of systems does not necessarily stop data sharing. The Care Inspectorate advised:

> ...the lack of interoperability does not prevent effective systems from being put in place to support access to those systems for different professionals, and there is some evidence of examples where that is working, although I appreciate that that is a workaround, rather than a solution to the problem.

Source: Health and Sport Committee 31 October 2017, Rami Okasha, contrib. 39[2]

140. Strathclyde Institute of Medical Devices commented that underpinning IT systems hampers professionals from exchanging information with ease, creating a healthcare system that is fragmented and inefficient. [65]

141. Problems with interoperability between health and social work were also raised by the Care Inspectorate and Argyll and Bute HSCP.

Emergency care and other summaries

142. The national Emergency Care Summary (ECS) system was rolled out nationally in 2006. It has several distinct components, with a degree of overlap. Current medication and allergies information is uploaded from all NHS Scotland GP IT Systems into ECS. ECS content is made available to many emergency, unscheduled and out-of-hours teams covering a range of scenarios.

143. The electronic Palliative Care Summary was rolled out in 2010 as an extension of ECS. Palliative Care information is contained as a distinct section of a patient's ECS record.

144. The Key Information Summary (KIS) was rolled out in 2013 as a further extension of ECS. The KIS dataset contains information including a patient's demographics, medical history, current situation, Self Management Plan, Anticipatory Care Plan, resuscitation preferences, Preferred Place of Care, and Palliative Care arrangements. Again, KIS information is contained as a distinct section of a patient's ECS record.

145. Anticipatory care plan (ACP) information is also included in the KIS section under "Special Notes" and coded information.

146. Access to the ECS and the additional components vary. Some people can access the ECS but cannot access the ACP. This is clearly a barrier to the delivery of good timeous care and to the continuity of care.

147. The Scottish Government's existing eHealth strategy 2011-2017 highlights the importance of palliative care, the ePCS and the KIS in supporting the sharing of key information from anticipatory care plans. The vision was to ensure everyone who needs an ePCS or KIS, has one in place and accessible by the right people at the right time to support a patient's care wishes.

148. We heard detail about the number of systems rolled out, it would appear in a piecemeal fashion, in the last 10 years and equally of the failure to provide access to key personnel for each of them. This, alongside repeated failures to provide promised access, paints a sorry picture of the approach to IT that has been taken.

149. For example we were astonished to learn about the lengths pharmacists have to go to to access vital perhaps lifesaving information. The Royal Pharmaceutical Society of Scotland advised they can only access the emergency care summary through NHS24 and if they wish to access the portal to check a patient record they must have the patients permission. This is not always possible if a relative or carer collects the prescription. [66]

150. It is worth noting the Welsh Assembly Government announced they will give Welsh community pharmacists access to the Welsh GP records from April 2018 and that English community pharmacists have had access to the Summary Care Records since June 2015.

151. MND Scotland highlighted the need for District Nurses and allied health professionals to be given access to upload information into the eKIS. [67]

152.   Not only can independent Scottish hospices not link with NHS IT systems but these hospices have rolled out electronic patient record systems that are all slightly different. [68]

153.   We note Commitment 7 of the Scottish Government's Strategic Framework for Action on Palliative and End of Life Care states: "We will improve the ways that information is recorded and shared by seeking to ensure that the requirements for future e-Health systems support the effective sharing of individual end of life/ Anticipatory Care Planning conversations and care preferences, while also addressing the need for improvement in the systems that are currently used".

Read and write access to records

154.   The need for read and write access to patient records was highlighted to us. It was said access was required across the health and social care arena. Areas particularly highlighted to us were community pharmacy, out-of-hours services, social care settings and hospices.

155.   The lack of read and write access to a patient's electronic health record by community pharmacists is seen as an "urgent patient safety concern" by the Royal Pharmaceutical Society in Scotland. [69]

156.   Marie Curie noted any future system that effectively manages anticipatory care planning information needs to include patient access, read and write access for all professionals who need it including social care, out of hours staff, care homes, hospices and district nurses with robust data protection and governance safeguards. [70]

157.   The interoperability of IT systems is both essential and fundamental if the Scottish Governments draft vision is to be achieved. We were disappointed to learn that the portal has not been rolled-out across all health boards. The strategy must ensure all systems held by all parts of the health and social care sector are interoperable and we would welcome detail of the timescale to achieve this.

158.   We recommend any cross-cutting technology, if it is to effectively join up health and social care, must include the social and community care sector and hospices and would expect to see this in the strategy.

159.   We were disappointed prisons have been omitted from ongoing IT developments for the wider NHS and recommended this was now addressed and rectified as a matter of urgency. Can the Scottish Government please confirm if prison IT will be included in the new strategy?

160.   Can the Scottish Government advise if they anticipate any legal barriers to making systems interoperable and the timescale to deliver this?

Single platform

161. We heard various examples of how data could be shared effectively, however the most repeated was the suggestion of a single platform or central spine. The Digital Health Institute Scotland highlighted international examples of good practice from Estonia, Finland, Galicia and Holland. They believe Scotland could learn from these countries and that there are tangible actions that could be taken. They commented on the principle of creating data once and using a central bridge or spine (using the example of xroad) and believe that this approach would have big savings in terms of time and resources. [71]

162. Argyll and Bute HSCP believe there would be significant benefits from the procurement and development of a single platform nationally that will link to and communicate with existing systems. [72]

163. NHS 24 commented that the ideal state would be a single source record, accessible by the individual and shared across the NHS. [73] This view was echoed by Strathclyde Institute of Medical Devices. [74] South Lanarkshire HSCP commented that a national portal would be useful which was used across primary and secondary care to ensure real time access to patient records by relevant health and social care professionals. [75]

164. The Digital Health and Care Institute agreed with a central spine idea, advising:

> Other countries have adopted the principle of creating data once; they say, "You can have your own data base, your own system and your own software package"—so there can be huge diversity—"as long as you share it in a central bridge." There is one bridge, and everyone has to connect to that bridge. That is a technical solution that is entirely feasible now

Source: Health and Sport Committee 31 October 2017, Chaloner Chute, contrib. 122[17]

165. The Digital Health and Care Institute went on to advise:

> DigitalHealth.London has done it across all the trusts in London; there is one bridge, to which everyone connects. That includes patients—the patient can connect to the bridge, see who is looking at their data and withdraw consent if they feel that someone is misusing their data or using it in a way that is not in line with their wishes. That is the patient empowerment, citizen rights and data protection win.

Source: Health and Sport Committee 31 October 2017, Chaloner Chute, contrib. 124[18]

166. We were pleased to hear the Scottish Government were working with the idea of a single platform for data:

> The big question is how quickly we can move to that new style of architecture—you described it as a spine or a platform, and that is a good way of understanding it. The building blocks of such systems are in place in other industries and other businesses, but it takes time to build the architecture...In effect, there will be a two-part process. The first part is to build the new platform and the second is to work across the system to bring the data and the existing systems there safely on to it.

Source: Health and Sport Committee 07 November 2017, Geoff Huggins, contrib. 48[19]

167. We agree the best way forward for data sharing is through a single platform, or spine, for data that other systems connect into and we note witnesses and the Scottish Government are in agreement. Can the Scottish Government advise whether it has had discussions with other countries regarding the use of a single platform?

168. Can the Scottish Government advise what work is being undertaken to procure such a system and when they anticipate it will be functional?

Ownership and control of data

169. Another linked area that came up repeatedly through our inquiry was the ownership health data and whether there was an opportunity for this to be owned by the individual. At present data is generally held by GP practices, with the GP as the data controller. The Information Commissioner's Office advised:

> The NHS has formally set up GP practices as data controllers, which makes them the legal entity with regard to the personal information that they use and process in any shape, manner or form.

Source: Health and Sport Committee 31 October 2017, Maureen Falconer, contrib. 73[20]

170. We heard there is variation across the country in terms of who GPs will share information with. Some are happy to share with colleagues in community pharmacies but not with out-of-hours services. Others won't share with anyone. This is rightly perceived as a public safety issue. The Royal College of Emergency Medicine Scotland noted:

> Every single GP out-of-hours system in Scotland cannot access the data for that practice's patients, which is just insane. An out-of-hours GP goes to see a patient and cannot find out anything about them, so they do the safest thing, which is probably to admit them to hospital. Out-of-hours services cannot even access care.

Source: Health and Sport Committee 31 October 2017, Dr Chung, contrib. 40[21]

171. The Information Commissioner's Office advised:

> we will tell GP practices and so on that they can share, by and large. The issue is all about proportionate and appropriate sharing to the appropriate person and looking to the data protection framework to be allowed to do that. Too often, that approach is seen as too hard; people do not understand it. Consent is seen as the be-all and end-all; people will say, "If I don't have consent, I can't do anything with this information and I can't share it." That could not be further from the truth.

Source: Health and Sport Committee 31 October 2017, Maureen Falconer, contrib. 73[20]

172. One suggestion we heard many times was the idea that citizens owned and controlled their own data. The Digital Health and Care Institute noted "The data controller should be the citizen". [76]

173. Argyll and Bute HSCP noted the importance of having a person facing system allowing individuals access and ownership to their own health and care records. With the added ability for people to enter their own health monitoring data which could be shared with health professionals.

174. The Royal College of Emergency Medicine Scotland also believe data should be owned by the individual, and highlighted that patients are often surprised that clinicians in emergency departments do not have access to their records:

> I say that we should be more radical and let the patient own their own data. The patients already think that we know everything about them. They come to an emergency department and say, "It's all in my record, doctor." We have to say, "We don't know what's in your record. We don't know anything." They think that we are joking, or that we are lazy and do not want to look, because they are used to information about every other aspect of their life being shared...If we gave a patient options and said, "Do you want a smart card with your data on?" lots of people would take it. They would say, "I know where my records are and then I can give it to you and you will know where my records are."

Source: Health and Sport Committee 31 October 2017, Dr Chung, contrib. 40[21]

175. Many people identified individual access and control of data as a powerful way of assisting behaviour change and an area where improvements could be made, with the Royal Pharmaceutical Society in Scotland noting patients wanted more access to their own health records and health information. [77]

176. The Scottish Government were in agreement with the Royal College of Emergency Medicine Scotland that patients expect health professionals to have their data, noting:

> Most patients would expect health professionals to have enough information about them to share in order to deliver the best-quality care for them, and I think that most patients would not have an issue with that.

Source: Health and Sport Committee 07 November 2017, Shona Robison, contrib. 47[22]

177. The Scottish Government also agreed with the proposal for citizen owned data. They advised:

> The starting point of the work that we do is that the individual owns their own data. However, the situation is complicated, because the NHS in some shape or form or other bodies will be the data controller...We think, therefore, that one of the key components of transformation is not only putting the person front and centre in the strategy but prioritising the use value of data for individuals, because once people are able to use their data, they will manage their health in a different way. Indeed, that has been the experience in all other areas. We therefore agree with the proposition that you have highlighted.

Source: Health and Sport Committee 07 November 2017, Geoff Huggins, contrib. 65[23]

178.   In line with witnesses we believe that citizens are best placed to own their own data. We recommend that the strategy provides information on the actions the Scottish Government is taking to move closer to this position and the timescales for its delivery.

179.   We understand any change to data control will not happen overnight. Can the Scottish Government advise what work will be done with GPs to ensure they are aware of the correct rules under data protection in relation to proportionate and appropriate data sharing?

Procurement

180.   A significant barrier to innovation in health and social care highlighted to us related to existing procurement procedures. NHS National Services Scotland commented the biggest barriers to widespread adoption were traditional models of IT procurement along with resistance to co-design and co-production. [78]

181.   CONSARD Ltd commented NHS Scotland currently lacks an explicit intent and provision within national procurements to support the emergence of more localised solutions adapted to local clinical priorities and governance structures. [79]

182.   Alzheimer's Scotland stated the current procurement framework disadvantages more bespoke technologies from being provided where they are not being bought in large numbers by commissioning bodies. [80]

183.   It was noted by the Scottish Lifesciences Association "The fact that much NHS procurement is "siloised" in boards. This leads to situations where, even if a board does buy an e-health system from a Scottish company, there is no assurance that other boards will do so, despite the advantages of a uniform approach. There is an urgent need to implement a "once for Scotland" procurement process for e-health and other products and services". [81]

184.   The Scottish Government noted it was working to resolve this issue:

> 🗩 I think that we have mentioned previously to the committee the procurement challenges that we face. The minute that we scale things up, it becomes tougher...However, we are now able to take things forward more efficiently by doing things once, through having single contracts with software and hardware suppliers. Sharing things is certainly how we want to proceed.

Source: Health and Sport Committee 07 November 2017, Graham Gault, contrib. 56[24]

185. We note the challenges highlighted and the Scottish Government approach of doing things once and hope this will remove many of the concerns we heard about. We trust this new approach to procurement covers all aspects raised with us while retaining a necessary degree of local flexibility in appropriate circumstances and look forward to confirmation particularly around the challenges of co-design and co-production.

Evaluation

186. We heard from a number of submissions that the success of the existing Scottish Government's strategy is extremely difficult to measure and quantify. Professor Theummler noted there are only experimental implementations and no standard applications that can be evaluated with health economic tools. [82] Others commented that no clear performance indicators were specified and the strategies should require to quantify and demonstrate improved outcomes. It was also suggested that clear evidence of positive outcomes and benefits realisation should have been made mandatory

187. We were pleased to hear from the Scottish Government this will be addressed in the new Strategy:

> 🗩 Yes, they will be measured. I am a firm believer in having milestones. We do not start off by saying, "We're going to go from there to there, and we'll see if we get there in five or 10 years' time". We need to plot a course and have milestones—where we expect to be in a year's time in terms of infrastructure, systems and governance—and to plot a course based on very clear milestones and the outcomes that we expect to achieve along the way.

Source: Health and Sport Committee 07 November 2017, Shona Robison, contrib. 55[25]

188. When giving evidence to the Committee the Cabinet Secretary for Health and Sport indicated "I see no reason why we could not produce a yearly report either to the Committee or to the Parliament if that would be in line with your thinking". [83]

189. We note the concerns raised around the scaling up and implementation of new and successful innovation and technology and the Scottish Government's intention to have clear milestones for the strategy.

190. We welcome the Scottish Government's commitment to having clear milestones for the strategy. We believe that at the outset the Scottish Government must include performance indicators to quantify and demonstrate improved outcomes.

191. We look forward to seeing the implementation plan and look forward to receiving updates on the delivery of the strategy, as offered by the Cabinet Secretary for Health and Sport. We would hope our report will assist in the development and scope of such a plan.

Conclusion

192. When we agreed to carry out this inquiry we thought we would be investigating ways of modernising the health and social care sector through the use of modern and ground-breaking technology and innovative and fresh ways of working. We expected to hear many stories of cutting-edge technology making dramatic changes in the way the sector works. We did not expect to hear of a culture that was reluctant to adapt new ways of working and where innovation is not encouraged and heavily out-dated IT systems still cause major barriers.

193. It is no surprise that in a system where decisions are made on a board by board basis that there is little leadership on technology and innovation. Often the boards or specialities that show strength in technology and innovation are only by a clinician who has a personal interest. This cannot continue. The Scottish Government must take ownership and ensure the nature of the NHS changes to welcome new and innovative ways of working. Only by having a "once for Scotland" approach can any meaningful changes happen.

194. It is no longer acceptable in this age that our health service is still using multiple incompatible systems and various platforms. In all our work we have heard repeated concerns around data sharing and interoperability. Nurses, pharmacists, allied health professionals, social care services, primary care services, prison health services and more all highlighting the fact they do not have timely access to relevant health records. This is an area the Scottish Government must tackle urgently to ensure appropriate medical care can be given in the right place at the right time. Work must be done to update systems so they can interact, whilst work must also be carried out to ensure data protection requirements and opportunities to share data are better understood.

195. We were also disappointed to hear of slow uptake in the use of technology in the sector. The public obviously has an appetite for new technology - the global market for wearable technology is forecast to grow to around six billion U.S. dollars by 2018. [84] People are wearing technology that can track their movements and record their heart rate on an increasingly frequent basis. The NHS and social care sector should be embracing and using this type of technology more.

196. The uptake of technology in the NHS that offers remote monitoring and new, time and cost saving ways of working seems very slow and inconsistent. This seems surprising when people so readily use such equipment in their personal lives for health and other areas such as banking. More must be done by the Scottish Government to increase the use of technology across NHS boards and social care. This cannot be left to be agreed on a board by board basis. Such a piecemeal process leads to increased variation in health outcomes across Scotland. We expect the use of technology should also lead to a reduction rather than an increase in health inequalities.

197. We believe the new strategy provides an opportunity for the Scottish Government to lead the way and radically develop the way technology is used in the NHS and

social care. It also presents an opportunity to ensure innovation in health and social care flourishes and that Scotland is a leader and is not left behind. It is essential the Scottish Government is bold and offer strong leadership on how and when this will be achieved.

Annexe A - Minutes of meeting

4. Technology and Modernisation in the NHS (in private): The Committee considered and agreed its approach to the inquiry.

3. Technology and Innovation in Health and Social Care: Neil Findlay and Brian Whittle made a declaration of interest, the full details of which can be viewed in the Official Report of the meeting.

The Committee took evidence, in a round table format, from—

- Alex Matthews, Digital Health and Social Care Lead, Scotland, PA Consulting;

- Professor Christoph Thuemmler, Edinburgh Napier University;

- Zahid Deen, Digital Health and Care Strategic Lead, Health and Social Care Alliance Scotland (the ALLIANCE);

- Elaine Gemmell, Head of Project Management, Scottish Health Innovations Ltd;

- Professor Patricia Connolly, Director, Strathclyde Institute of Medical Devices;

- John Brown, Director of Policy, Scottish Lifesciences Association; and

- Andy Robertson, Director of IT, NHS National Services Scotland

5. Technology and Innovation in Health and Social Care (in private): The Committee considered the evidence heard earlier in the meeting.

1. Technology and Innovation in Health and Social Care: The Committee took evidence, in a round table format, from—

- Professor Brian McKinstry, Professor of Primary Care eHealth, University of Edinburgh;

- Dr Juliet Spiller, Consultant in Palliative Medicine, Scottish Partnership for Palliative Care;

- Rami Okasha, Executive Director of Strategy and Improvement, Care Inspectorate;

- Stephen Whiston, Head of Strategic Planning and Performance, Argyll & Bute Health and Social Care Partnership;

- Dr David Chung, Vice President, Royal College of Emergency Medicine Scotland;

- Aileen Bryson, Practice and Policy Lead, Royal Pharmaceutical Society Scotland;

- Chaloner Chute, Chief Technology Officer, The Digital Health and Care Institute; and

- Maureen Falconer, Regional Manager Scotland, Information Commissioner's Office

4. Technology and Innovation in Health and Social Care (in private): The Committee considered the evidence heard earlier in the session.

25th Meeting, 2017 (Session 5), Tuesday 7 November 2017

1. Technology and Innovation in Health and Social Care: The Committee took evidence from—

- Shona Robison, Cabinet Secretary for Health and Sport, Geoff Huggins, Director for Health and Social Care Integration, Scottish Government, and Graham Gault, General Manager, Information and Communications Technology, NHS Dumfries and Galloway and Head of eHealth, Scottish Government.

3. Technology and Innovation in Health and Social Care (in private): The Committee considered the evidence heard earlier in the session.

3rd Meeting, 2018 (Session 5), Tuesday 23 January 2018

5. Technology and Innovation in Health and Social Care (in private): The Committee considered a draft report and agreed to consider a revised draft at its next meeting.

Annexe B - Evidence

Written evidence

- TINN001 Kelly Coote

- TINN002 PA Consulting

- TINN003 Bernadette Bell

- TINN004 Brian Griffiths

- TINN005 Michelle Duffy

- TINN006 Professor Christophe Thuemmler

- TINN007 Ideas for Ears

- TINN008 MS Society Scotland

- TINN009 CONSARD Ltd

- TINN010 Edinburgh Medical School

- TINN011 Audit Scotland

- TINN012 Marie Curie

- TINN013 British Dental Association

- TINN014 Chest Heart & Stroke Scotland

- TINN015 Scottish Partnership for Palliative Care

- TINN016 Care Inspectorate

- TINN017 Mental Health Foundation

- TINN018 Alzheimer Scotland

- TINN019 Roche Diagnostics Ltd

- TINN020 medConfidential and Open Rights Group

- TINN021 Argyll and Bute Health and Social Care Partnership

- TINN022 Scottish Social Services Council

- TINN023 The Health and Social Care Alliance Scotland (the ALLIANCE)

- TINN024 Perth and Kinross Health and Social Care Partnership

- TINN025 MND Scotland

- TINN026 Smart Energy GB

- TINN027 Mydex CIC

- TINN028 Scottish Council on Deafness

- TINN029 Highlands and Islands Enterprise

- TINN030 Royal College of Emergency Medicine

- TINN031 Scottish Health Innovations Ltd

- TINN032 Ieso Digital Health

- TINN033 Tactical Wireless Ltd

- TINN034 Macmillan Cancer Support in Scotland

- TINN035 JDRF

- TINN036 Strathclyde Institute of Medical Devices at the University of Strathclyde

- TINN037 Arthritis Research UK

- TINN038 NHS Education for Scotland

- TINN039 NHS24

- TINN040 Scottish Lifesciences Association

- TINN041 Crohn's and Colitis UK

- TINN042 Glasgow City Health and Social Care Partnership

- TINN043 RCGP Scotland

- TINN044 InterSystems

- TINN045 Scottish Care

- TINN046 Royal College of Nursing Scotland

- TINN047 Royal Pharmaceutical Society in Scotland

- TINN048 National Pharmacy Association

- TINN049 Tunstall

- TINN050 Diabetes Scotland

- TINN051 NHS National Services Scotland

- TINN052 Open University

- TINN053 Community Pharmacy Scotland

- TINN054 East Lothian Health and Social Care Partnership

- TINN055 Information Commissioner's Office

- TINN056 Patients Know Best

- TINN057 Digital Health and Care Institute

- TINN058 Parkinson's UK in Scotland

- TINN059 NHS Dumfries and Galloway

- TINN060 Justene Ewing

- TINN061 BT Scotland

- TINN062 Collaborative response from the health professions working in primary care

- TINN063 Anonymous 1

- TINN064 Stirling Council

- TINN065 NHS Greater Glasgow and Clyde

- TINN066 Healthcare Improvement Scotland

- TINN067 Carers Trust Scotland

- TINN068 South Lanarksire Health and Social Care Partnership

- TINN069 BMA Scotland

- TINN070 NHS Orkney

- TINN071 British Healthcare Trades Association Scotland

- TINN072 Reform Scotland

- TINN073 Bill Buchanan

Additional Written Submissions

- Health and Social Care Alliance Scotland (the ALLIANCE)

- Scottish Lifesciences Association - Innovation Centres

- Scottish Lifesciences Association - Adoption and spread of new technologies

- Professor Christoph Thuemmler

- Scottish Partnership for Palliative Care

- Strathclyde Institute of Medical Devices

- Scottish Health Innovations Ltd

- Scottish Health Technologies Group

- Cross Party Group on Inflammatory Bowel Disease

- Letter from the Cabinet Secretary for Health and Sport

Official Reports

- Tuesday, 3 October - Roundtable evidence from stakeholders

- Tuesday, 31 October - Roundtable evidence from stakeholders

- Tuesday, 7 November 2017 - Evidence from Cabinet Secretary and officials

[1]   Health and Sport Committee 03 October 2017, John Brown, contrib. 238,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11133&c=2029538

[2]   Health and Sport Committee 31 October 2017, Rami Okasha, contrib. 39,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11166&c=2034622

[3]   Health and Sport Committee 07 November 2017, Shona Robison, contrib. 37,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11182&c=2037261

[4]   Health and Sport Committee 03 October 2017, John Brown, contrib. 289,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11133&c=2029589

[5]   Health and Sport Committee 03 October 2017, Andy Robertson, contrib. 230,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11133&c=2029530

[6]   Health and Sport Committee 03 October 2017, John Brown, contrib. 179,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11133&c=2029479

[7]   Health and Sport Committee 03 October 2017, Professor Connolly, contrib. 203,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11133&c=2029503

[8]   Health and Sport Committee 03 October 2017, John Brown, contrib. 264,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11133&c=2030517

[9]   Health and Sport Committee 03 October 2017, Professor Thuemmler, contrib. 178,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11133&c=2029478

[10]   Health and Sport Committee 03 October 2017, Elaine Gemmell, contrib. 200,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11133&c=2029500

[11]   Health and Sport Committee 07 November 2017, Shona Robison, contrib. 11,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11182&c=2037235

[12]   Health and Sport Committee 07 November 2017, Shona Robison, contrib. 53,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11182&c=2037277

[13]   Health and Sport Committee 03 October 2017, Professor Thuemmler, contrib. 263,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11133&c=2029563

[14]   Health and Sport Committee 03 October 2017, Professor Connolly, contrib. 297,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11133&c=2029597

[15]   Health and Sport Committee 31 October 2017, Maureen Falconer, contrib. 26,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11166&c=2034609

[16]   Health and Sport Committee 31 October 2017, Aileen Bryson, contrib. 42,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11166&c=2034625

[17]   Health and Sport Committee 31 October 2017, Chaloner Chute, contrib. 122,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11166&c=2034705

[18]   Health and Sport Committee 31 October 2017, Chaloner Chute, contrib. 124,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11166&c=2034707

[19] Health and Sport Committee 07 November 2017, Geoff Huggins, contrib. 48,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11182&c=2037272

[20] Health and Sport Committee 31 October 2017, Maureen Falconer, contrib. 73,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11166&c=2034656

[21] Health and Sport Committee 31 October 2017, Dr Chung, contrib. 40,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11166&c=2034623

[22] Health and Sport Committee 07 November 2017, Shona Robison, contrib. 47,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11182&c=2037271

[23] Health and Sport Committee 07 November 2017, Geoff Huggins, contrib. 65,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11182&c=2037289

[24] Health and Sport Committee 07 November 2017, Graham Gault, contrib. 56,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11182&c=2037280

[25] Health and Sport Committee 07 November 2017, Shona Robison, contrib. 55,
http://www.scottish.parliament.uk/parliamentarybusiness/report.aspx?r=11182&c=2037279

1   PA Consulting, Roche Diagnostics and Justene Ewing written submissions

2   Edinburgh Medical School written submission

3   Chest, Heart and Stroke Scotland written submission

4   The Royal Pharmaceutical Society in Scotland written submission

5   Argyll and Bute Health and Social Care Partnership written submission

6   Parkinson's UK in Scotland submission

7   NHS Dumfries and Galloway written submission

8   Michelle Duffy written submission

9   Royal College of Emergency Medicine written submission

10 Digital Health and Social Care Strategy 2017-2020 - Wellbeing

11 Digital Health and Social Care Strategy 2017-2020 - Improving services

12 Justene Ewing written submission

13 NHS National Services Scotland written submission

14 Digital Health and Care Institute written submission

15 Information Commissioner's Office written submission

16 Edinburgh Medical School written submission

17 The Scottish Social Services Council written submission

18 Parkinson's UK in Scotland written submission

19 NHS National Services Scotland written submission

20 Scottish Health Innovations Ltd written submission

21 The ALLIANCE written submission

22 Health and Sport Committee Official Report, 7 Nov 2017

23 The Royal Pharmaceutical Society in Scotland written submission

24 The Mental Health Foundation written submission

25 Chest, Heart and Stroke Scotland written submission

26 medConfidential and the Open Rights Group written submission

27 Mydex CIC written submission

28 NHS National Services Scotland written submission

29 Health and Sport Committee Official Report 3 Oct 2017

30   NHS National Services Scotland written submission

31   Diabetes Scotland written submission

32   Health and Sport Committee Official Report 7 November 2017 COL 8

33   Health and Sport Committee Official Report 3 October 2017

34   Royal College of Emergency Medicine written submission

35   The Care Inspectorate written submission

36   Alzheimer's Scotland written submission

37   The Mental Health Foundation written response

38   NHS National Services Scotland written response

39   Scottish Health Innovations Ltd written submission

40   Highlands and Islands Enterprise written submission

41   RCGP Scotland and Community Pharmacy Scotland written submissions

42   NHS National Services Scotland written submission

43   Perth and Kinross Health and Social Care Partnership written submission

44   The Royal College of Emergency Medicine written submission

45   South Lanarkshire Health and Social Care Partnership written submission

46   Edinburgh Medical School written submission

47   Health and Sport Committee Official Report 3 October 2017 COL 27

48   Health and Sport Committee Official Report 3 October 2017 COL 27

49   The ALLIANCE written submission

50   Justene Ewing written submission

51   NHS National Services Scotland written submission

52   Strathclyde Institute of Medical Devices written submission

53   The Digital Health and Care Institute written submission

54   Health and Sport Committee Official Report 3 October 2017 COL 40-41

55   Parkinson's UK in Scotland written submission

56   The Scottish Partnership for Palliative Care written submission

57   RCGP Scotland written submission

58   Care Inspectorate written submission

59   Royal College of Emergency Medicine written submission

60   Chest Heart and Stroke Scotland written submission

61   Justene Ewing written submission

62   Health and Sport Committee Official Report 31 Oct 2017

63   The Digital Health and Care Institute written submission

64   Justene Ewing written submission

65   Strathclyde Institute of Medical Devices written submission

66   Health and Sport Committee Official Report 31 Oct 2017

67   MND Scotland written submission

68   Health and Sport Committee Official Report 31 October 2017 COL 12

69   The Royal Pharmaceutical Society in Scotland written submission

70   Marie Curie written response

71   Digital Health and Care Institute written submission

72   Argyll and Bute Health and Social Care Partnership written response

73   NHS24 written submission

74   Strathclyde Institute of Medical Devices written submission

75   South Lanarkshire Health and Social Care Partnership written submission

76   Health and Sport Committee Official Report 31 October 2017 COL 15

77   The Royal Pharmaceutical Society in Scotland written submission

78   NHS National Services Scotland written submission

79   CONSARD Ltd written response

80   Alzheimer's Scotland Ltd written submission

81   Scottish Lifesciences Association written submission

82   Professor Christoph Thuemmler written submission

83   Health and Sport Committee Official Report 7 November 2017 COL 17

84   https://www.statista.com/statistics/302482/wearable-device-market-value/