General Practice Information Technology Options

Report to NHS Scotland eHealth Board - Draft V2.0

November 2006

Deloitte.

Contents

Executive Summary

Delivering for Health

- Delivering for Health envisages integrated patient records supporting the work of groups of professionals and new models of care in terms of staff roles and care locations. The envisaged transition includes a continued shift of care from secondary to primary and community care settings, i.e. more complex care outside the hospital, as well as a greater focus on anticipatory care. This will require more aggregated patient databases, i.e. at Community Health Partnership or NHS Board level, which present a comprehensive picture of individuals and their health status.
- This suggests a shift to more integrated primary and community care records recording the interventions of all staff involved in care processes. It also suggests enterprise systems, above the level of the individual general practice, but retaining the necessary segmentation of patient groups and providing access to healthcare professionals on a 'need to know' basis.
- The increasingly important role of systems in the care process and the shift to 'paperlite' operation requires robust, easily maintainable technical architectures. This will be supported by enterprise systems, provided from a robust, hosted environment.
- Given these requirements, the Status Quo is not an option if Delivering for Health is to be effectively supported. The best support for Delivering for Health would result from pursuing and delivering Scenario 3, described below, and focused on addressing the broader requirements of primary and community care. However, the scale of challenge involved should not be underestimated.

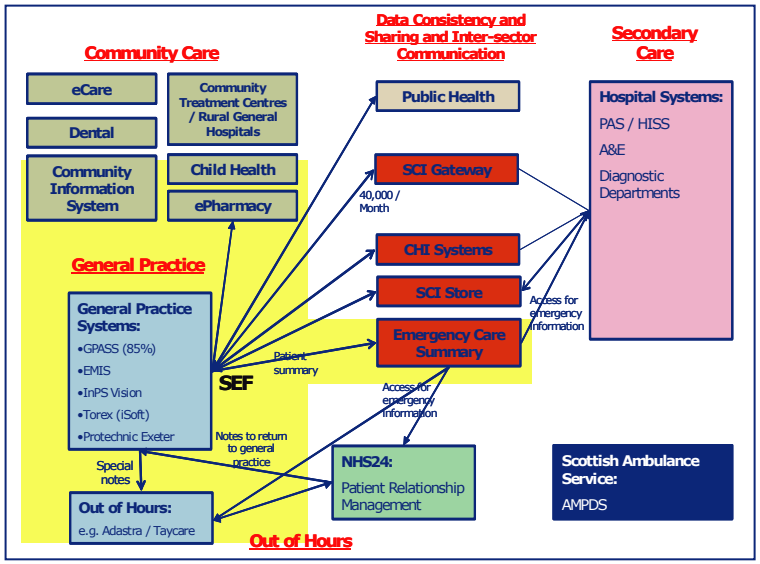
Application Strategy Scenarios

The way forward for GP systems should not be considered in isolation. It needs to be considered in the context of related application areas.

Three scenarios are considered in this report. The preferred scenario, **Scenario 3,** recognises the wider primary and community healthcare team and focuses on a solution to meet requirements across a wider range of healthcare professionals and care settings, as shaded in yellow on the adjacent diagram. At a high level, this can be regarded as seeking an integrated Primary and Community Care Patient Record. It needs to be recognised that the extent of data sharing would need sophisticated control. In particular, some data recorded by, and accessible to, a patient's GP may not be appropriate for access by all healthcare professionals.

Scenario 3 also includes the functionality undertaken at present in Scotland by the Emergency Care Summary. At present, this physically separate system reproduces data held in the general practice system, comprising a slim subset that poses little risk to patient confidentiality in the context of widespread access. Many consultees expect this dataset to increase over time. However, some practitioners harbour significant concerns about such a development. An option within Scenario 3 would be to control access to the dataset within the originating system.

Option 3 – Primary Care, Community and Emergency



GPASS

- GPASS has evolved from being an administrative system to supporting clinical requirements. As such, in the past it has met the needs of general practitioners. The current product does not meet current clinical requirements but GPASS Clinical, if it can be successfully delivered, will provide better support for GPs and patient care.
- Future requirements, as outlined in Delivering for Health, have moved on. Whilst the GPASS team has been developing GPASS Clinical to meet immediate practice needs, the requirement has broadened to focus on the wider primary care team and extends to data sharing between the health service and its partners, based on a framework of informed consent, supporting Community Health Partnership working. This requirement requires a system which can be centrally hosted and is "enterprise" based (so called because it has as its data base all patients in an area and is not limited to a practice).
- These requirements are far more complex than GPASS has had to address historically, and GPASS is not well placed to respond in terms of its current product architecture and the probable costs and risks associated with a major redevelopment of the system, when commercial alternatives are available. NSS is clear that if the direction of travel is to provide support for the extended primary care team, then GPASS was never designed to provide such support and on that basis NSS is content that a strategy for migration is required. However, NSS's experience on development and support of GPASS would make them well placed to contribute to such a strategy.
- The commercial supplier market has already responded to the above requirements and could be able to deliver such products well in advance of GPASS. There are examples of hosted, enterprise systems, with products well advanced in development. Additionally, they are better placed to make the necessary investment and access the required skills. Under these circumstances it makes sense for Scotland to seriously consider the available commercial products. However, there remains some uncertainty regarding outcomes in the supplier market in terms of which applications will emerge as the dominant products.
- If an alternative solution(s) is selected it will not be viable to maintain GPASS for a small, residual group of users. A planned exit from GPASS would, therefore, be required. In procuring an alternative solution, NHS Scotland should consider options for an incoming supplier to retain the knowledge, experience and skills of the current GPASS staff. This would need to be negotiated as part of the procurement process.

A Possible Scenario

- Out of the three scenarios presented in this report, Scenario 3 has the greatest potential to meet the requirements of Delivering for Health, and would represent a step change forward for Scotland as opposed to a more limited replacement of GP systems. However, it is the most complex to take forward in terms of procurement and subsequent implementation, and clearly there is further work as part of a procurement process to assure the suitability of commercial products that are currently in development.
- A national procurement provides the best opportunity to:
  - assess how far along the spectrum, from general practice (Scenario 1) to a wider primary and community care record (Scenario 3), to advance at the present time given the state of development of commercial products and acceptability to users in relation to security and confidentiality;
  - take a decision between opting for a single national supplier on the basis of a clearly superior functional and commercial offering or provide a choice between broadly comparable products (however, with a probable maximum of 2);
  - achieve the best prices.

A Possible Scenario (cont.)

- An overall single supplier appears to have most advantages for NHS Scotland, recognising that it is a relatively small market in comparison with the UK as a whole. However, there are risks in relation to the future status of current market suppliers, and the determination of whether to have a single supplier or possibly two suppliers can ultimately be resolved during the procurement process.
- If two systems were made available, commonality of system at NHS Board level appears a minimum requirement to achieve maximum benefits in terms of supporting Delivering for Health, although in the largest NHS Boards Community Health Partnership level could be a possibility. However, 'GP Choice' is a reality and an acceptable position will need to be negotiated with the representatives of general practitioners. They will need to perceive advantages for Scotland in a common strategy.
- If this is to be achieved various assurances will be required, in particular that:
  - general practitioners and the other community healthcare professions will be able to play a full role in determining the requirements and selecting the preferred system, i.e. any procurement must be clinically led;
  - concerns relating to patient information confidentiality will be addressed. In particular, an effective and secure role based access model will be required, with appropriate roles for GPs and patients in agreeing access, and supporting security and procedures;
  - the vital importance of maintaining data quality for general practice is recognised and GPs can be assured that practice and patient data are protected by appropriate controls.

Interim Developments

- Given the timescales for the above scenario, there will need to be interim development of GPASS. GPASS Clinical is not yet a robust solution. However, if Version 3500 can be delivered effectively over the MTS it can provide enhanced functionality on an interim basis for those practices that wish to take it. It is vital, however, that this product receives robust testing before any further attempted deployments.
- Two NHS Boards and a number of practices have expressed a commitment to move to commercial systems immediately and undoubtedly will regard an 18 month to 3 year delay as highly undesirable. It should be recognised that there is a wide spectrum of views on the need for urgent replacement of GPASS. These organisations will need to reconsider the urgency of local change in the light of the selected national direction. If local change proceeds, it should be undertaken with a view to integrating in due course to the new national arrangements and should be undertaken with a view to meeting the requirements of Delivering for Health.

Introduction

Remit

- Deloitte was appointed to undertake a study of General Practice Information Technology (GP IT) in Scotland and to provide advice to the NHS Scotland eHealth Board. The overall remit for the work is set out below.

  "The study should cover the range of GP IT software products currently in use, and any market leading products not currently in use. It should cover future options for implementation, development and support for these products and compare that with the status quo."

- The initiation process for the study recognised that:
  - the study was high level in nature and should be focused on setting a strategic direction for GP IT;
  - it would not focus on a check against the original Ritchie Report recommendations, nor was it intended as a detailed functional comparison of software products as would occur during a procurement project;
  - any cost information was likely to be very high level at this stage, as a supplier Request for Information process was not practical at this time, and would be addressed primarily, if required, through a subsequent business case process;
  - the study would not make a specific single recommendation, but was intended to provide analysis to support the NHS Scotland eHealth Board in selecting a preferred strategic direction. This recognised that the final decision on strategic direction may be affected by wider organisational priorities and considerations outwith the scope of this study.

- It was also recognised during the course of the study that the review was not best undertaken by an analysis of a discrete set of options, but rather by examining a series of scenarios and key issues and thereby developing a view on an appropriate way forward. This document sets out the results of that analysis as an aid to the deliberations of the NHS Scotland eHealth Board.

Approach

The work was undertaken as follows:

- examination of relevant documentation dating back to the Ritchie Report of 2002 and including a wide range of strategic documents, reviews, submitted business cases to change GP system, and commentary submitted by a range of individuals.
- Consultation with a wide range of interested parties, including:
  - the SEHD primary and community care directorate;
  - NSS and GPASS management;
  - management and technology staff from AxSys Technology, the firm that has undertaken the development of GPASS Clinical;
  - IT management and clinical representatives from 6 NHS Boards (Ayrshire & Arran, Glasgow, Grampian, Lanarkshire, Lothian and Tayside);
  - LMC representatives in the same NHS Boards;
  - representatives from the SGPC and RCGP;
  - other interested parties (academia, practice nursing, individual GPs, including those testing the GPASS Clinical product);
  - lead users of other commercial general practice systems in Scotland (SCIMP);
  - three commercial system suppliers (EMIS, InPS, The Phoenix Partnership);
  - a variety of individuals with an interest in the subject area.
- Analysis of findings, review sessions with GPASS, NSS, and the Study Project Board, and an interim presentation to the NHS Scotland eHealth Board.
- We would like to thank everybody who participated in the consultation processes for the study for their contributions.

Background

- In terms of healthcare computing, GP IT is a relative success story and in the UK today the most comprehensive electronic patient records are found in primary care.
- Scotland was an early leader in the field of GP IT through the development of GPASS (General Practice Administration System for Scotland). Today approximately 85% of Scottish General Practices use GPASS, the remaining 15% each using one of four commercial systems (EMIS PCS, InPS Vision 3, iSoft, Protechnic Exeter). Each commercial system in Scotland is largely the same as the equivalent product in use in England. However, they are also accredited against the Scottish Enhanced Functionality (SEF) requirements which addresses specific Scottish needs in relation to integration with SCI Store and SCI Gateway (in particular for results and referrals reporting), linkage with the Emergency Care Summary (ECS) system, and ePharmacy requirements. It should be noted that to date GPASS is the only system to have implemented this functionality, although the commercial suppliers are committed to achieving this in co-operation with NSS.
- Today GPASS is maintained, developed and supported primarily by the GPASS team which is part of the national Information Systems Group within NHS National Services Scotland and is based at Cirrus House in Paisley. The GPASS team comprises of approximately 90 staff. There are a number of relationships with third party organisations for add-on functionality, including a key relationship with AxSys Technology, the developer of GPASS Clinical.
- Over recent years increasing concern has been expressed by general practitioners and their representatives about the GPASS product and the quality of support provided by the GPASS team. Accordingly, a review was undertaken, led by Professor Lewis Ritchie, which resulted in the 'GPASS Review Report' and the associated 'Pringle Review of Functionality' in June 2002. Eighty three recommendations were made and a follow-up Assessment of Progress in June 2004 reported that 43 of these had been completed or substantially fulfilled, 30 were in train, 4 had not been actioned and 7 were outside the GPASS team's immediate control. However, the Assessment of Progress also concluded that:

  "While a definitive assessment of the progress of GPASS remains elusive, on balance, this snap-shot view suggests that significant progress has occurred, against numerous challenging recommendations. However, clinical functionality requires further substantive improvement to enable widespread realisation of paperless practices throughout Scotland. Both the GPASS Programme Board and GPASS must be resolute in addressing outstanding issues, in order to secure success. Renewal of GPASS remains a work in progress and while much has been accomplished, there is still much to do."
- The Assessment of Progress went on to set out a significant number of remaining key and challenging priorities for GPASS and, in particular, noted that whilst there were a variety of views on progress with GPASS, the relatively benign sentiments present at that time might change rapidly in the absence of significant progress.

- During the period since 2004 the new GMS contract has provided General Practices with a right to 'System Choice' and independent selection of a preferred computer system.
- In the period since November 2004 the Scottish General Practitioners Committee has outlined problems with GPASS to SEHD. A temporary embargo was agreed on system choice under the new GMS contract in recognition of specific Scottish circumstances (advantages perceived in the vast majority of Scottish general practitioners utilising the same system and potential to achieve value for money). However, in view of continuing problems with GPASS, and four examples of practices changing on a self funding basis from GPASS to InPS Vision 3, the embargo was ended in February 2005.
- Since 2004, GPASS has focused, in particular, on the development and delivery of GPASS Clinical, a major add-on to the existing GPASS product (referred to here as the core GPASS product) which addresses the request for improved clinical functionality, in particular in the consulting room environment to support the interaction with the patient. GPASS Clinical has been developed by AxSys Technology, the firm which also provides the Generic Clinical Toolset used within NHS Scotland.
- The intention is to provide GPASS Clinical, together with the core GPASS product, over a Managed Technical Service (MTS) provided by Atos Origin under contract to NHS National Services Scotland. To date, this has proved problematic with a range of issues to be overcome. However, the GPASS core product is being delivered over the MTS to a small number of general practices, but GPASS Clinical is not. At the time of writing GPASS Clinical is installed on practice servers in two beta test sites. This position may change over the next few months.
- As a result of continued delays in the delivery of GPASS Clinical, the problems experienced with the MTS, and other concerns about support and delivery of intermediate developments / requirements, there has been a rising level of concern and complaints about GPASS in Scotland. Events indicative of the level of dissatisfaction include:
  - proposals by approximately 50 individual general practices to move away from GPASS to a system from a commercial supplier. These business cases have not been funded. However, a small number of practices have procured a commercial system meeting the cost from within the practice;
  - a business case from Tayside Health Board proposing a wholesale move away from GPASS by its General Practices (71 in total). 80% of general practices have agreed to take the InPS Vision 3 product, with 12% (9) remaining with GPASS and the remainder (7) staying with their existing commercial supplier. The business case has a capital cost of £512k with ongoing revenue costs of £260k per annum;
  - a business case from Grampian Health Board to move the majority of its general practices (84 in total) away from GPASS, again primarily to the InPS Vision 3 product (57). The anticipated capital cost is £570k with ongoing revenue costs of £243k;
  - other Health Boards around Scotland have been holding demonstrations of alternative commercial general practice systems for their general practitioners.

- Since February 2005, when the temporary embargo was lifted, the Scottish General Practitioners Committee has continued to highlight problems with GPASS, including in April 2006 recommending that NHS Scotland should seriously consider disinvesting in GPASS.
- During the 2006 Scottish Local Medical Committees Conference it was resolved that:

  "This conference:

  1. *Believes that GPASS has failed general practice and is not fit for purpose;*
  2. *Considers the continuation of GPASS to be a poor use of public funds;*
  3. *Demands that GPASS should be abandoned and replaced with better GP computer systems as soon as possible;*
  4. *Insists that existing users of GPASS are supported on a care and maintenance basis during a planned migration to alternative clinical systems."*

  (Motions 1, 2, and 4 were passed with clear majorities. Motion 3 required a card vote which gave a result of 38 in favour and 25 against, with abstentions not counted)

  "The conference also insisted that:

  1. *The funding of current primary care IT, including GPASS, be fully transparent;*
  2. *Central funding should be made available to NHS Boards to fund the change from GPASS to other software suppliers."*
- In June 2006, the Scottish General Practitioners Committee and the Royal College of General Practitioners reiterated its position *"that GPASS is not fit-for-purpose and that the mantra of "everything will be fixed in the next version" is no longer acceptable"*.
- The problematic recent history of GPASS and the level of dissatisfaction set out above are clearly important precursors to this study, together with the emerging eHealth Strategy for Scotland and the need to ensure that the future direction of GP IT fits within the wider strategic context.

Strategic Context – Delivering for Health

- The National Framework for Service Change (the Kerr report) identified that the status quo definitely cannot be an option for NHS Scotland. Subsequently, 'Delivering for Health' set out a programme to shift the balance of care towards a system which emphasises a wider effort on improving health and well-being.
- Better, integrated planning is proposed, including networks of rural hospitals. Community Health Partnerships are expected to work across the barriers between primary and secondary care, including engaging with social care.
- A strong emphasis is placed on making the NHS an integrated service, so that patients experience a smooth and quick journey of care wherever and however they access services. In particular, there is a focus on wherever possible strengthening local services, with more support for self-care, more intensive case management for individuals with serious long term conditions, and with more capacity for local diagnosis and treatment. Proposed developments include:
  - more health care provided locally in GP practices, in community pharmacies or, increasingly, in Community Health Centres that deliver a wider range of diagnostic services and day care treatment;
  - services will be provided in Community Casualty Units when it is safe to do so;
  - local primary care teams with dedicated resources to reach out and help people with higher risks of ill-health;
  - older, frail patients, liable to frequent hospital admission, will get co-ordinated care provided locally;
  - if patients need to go to hospital, they will have quicker access and more tests will be done locally.

- These developments are expected to lead to more multi-site and multidisciplinary care within the community and increased patient flows between clinical professionals. Accordingly, 'Delivering for Health' looks for effective information systems and improved patient records as part of the infrastructure to enable the overall health care system to function effectively. There is a commitment to implement a national information and technology system including an Electronic Health Record.

- Scotland's emerging eHealth Strategy is concerned with meeting 'Delivering for Health's' commitment to a comprehensive health information system built around an Electronic Health Record. Its focus is to build on progress that has already been made.

- A range of objectives have been identified, including:
  - all patients and staff who treat them will have access to a Personal Health Record, which will ultimately **replace paper records**;
  - support will be available for integrated healthcare services through **sharing of patient information** while **maintaining confidentiality of patient information**;
  - there will be **data sharing between the health service and its partners**, based on a framework of informed consent, **supporting Community Health Partnership working**;
  - information systems will be able to support the three functions of **assessment of need, care planning and co-ordination, and evaluation of quality of care**;
  - healthcare professionals will be able to **access best practice information and participate in clinical networks**;
  - clinical staff will **record their interventions directly into Electronic Health Records**, rather than transcribe to written records.

- In particular, it has been identified that GP computing should move towards patient databases which can match residents of Community Health Partnerships to meet wider community and primary care needs. This reflects the intent to offer a much wider range of integrated services in the community, based around new facilities such as Community Health Centres and extended roles for staff such as practice nurses and community specialist staff.

- Scotland is, therefore, committing itself to a very significant investment in information technology to deliver Electronic Health Records and associated functionality. However, a key risk is that such an investment provides systems and tools but with insufficient adoption and change to deliver benefits on an appropriate scale. There is, therefore, a major challenge in relation to not only technology but also care process redesign and change management.
- Such an investment needs to be based on an expectation that the overall programme is capable of delivering a radical improvement in NHS Scotland's operational capability and performance. The simple provision of better information technology for clinicians to adopt in a piecemeal fashion based on current practices is unlikely to deliver an acceptable return on the required investment. There must be a clear expectation that it will support significant improvement in terms of safety, quality and productivity, together with a delivery approach and an implementation process that have a realistic likelihood of a successful outcome. This outcome should include improved value from the investment in information systems based on a better experience for both patients and staff.
- Delivering the above will be challenging as it moves the objectives for eHealth beyond the delivery of technology products to a programme which must address clinical knowledge, care processes and behavioural issues. This will mean further addressing highly complex issues such as:
    - the creation, management and regular updating of knowledge bases in a wide range of areas such as drug prescription advice and guidelines, drug interactions, care protocols for individual conditions including expected investigation, treatment and care regimes, access to best practice and guidelines in key areas, and referral protocols. All of the above will probably need to be designed at a national level (such as the SIGN guidelines) if they are to be effectively maintained, although some tailoring to local circumstances can be expected;
    - increasingly standardising care processes and supporting these through the use of technology. This will need to strike a delicate balance between supporting clinical decision taking and patient care and not inappropriately constraining clinical judgement and the patient relationship. In essence, it must be judged by clinicians to be a valuable tool, in particular in supporting less experienced staff undertaking new or extended roles;
    - requiring clinical staff to follow information recording procedures important to the overall effective functioning of the health care system and the long term care of patients, and formally agreeing and enforcing levels of authority for access to patient data and care process initiation. Currently, staff frequently access patient data, initiate various care processes and commit resources manually which allows a far more informal system.

- Consultation during this study has identified various generic challenges that are perceived for GP computing in future based on anticipated trends in the delivery of healthcare, related in particular to making more of the information held by general practitioners more widely available within the healthcare system, for example for services provided at a higher level within NHS Scotland than general practice level:
  - the ECS data set is currently very limited which is a reflection of the confidentiality concerns of many GPs. However, it is anticipated by many parties that it needs to expand in future to include more of the general practice record if maximum benefit is to be gained for patient care. For example, at present it does not include existing diagnoses;
  - usage of the information in GP systems is expected by many in future to routinely be by the extended primary care and community team. This will increase complexities of maintaining appropriate confidentiality of some patient data;
  - a gap is perceived in the data recording and functionality currently available to support practice nurses, AHPs and other community specialists. The care delivered by these groups of professionals and the associated patient data is regarded as being closely aligned with the patient information generated by general practitioners, in terms of maintaining a comprehensive record;
  - there may be a need to record care delivered by community pharmacists as a result of the development of extended services. Additionally, extended functionality is required to support ePharmacy developments;
  - potentially, there is a need for better integration with out-of-hours systems or better arrangements for access to key data by out-of-hours staff. This could extend to additional patient information to support both NHS24 and Out-of-Hours practitioners beyond the shortly anticipated access to the ECS record;
  - community facilities, such as Community Treatment Centres or Rural General Hospitals will benefit from access to patient records from their surrounding catchment areas which will cover multiple practices.
- However, key concerns have also been expressed in relation to such developments:
  - general practitioners and practice staff are strongly committed and have a key interest in maintaining the quality of patient data held in local systems. There is concern that the level of ownership and commitment to quality data may not be reflected in other parts of the health system outwith the immediate practice. There is also concern to ensure that the quality of patient data currently held in GP systems is not compromised through wider access and usage;
  - the wider the extent of access to systems and data the greater the challenges of ensuring appropriate confidentiality of patient information. The limited nature of the current ECS dataset is a reflection of concerns to ensure patient information confidentiality. Future developments will need to be supported by appropriate mechanisms to allow 'Role Based Access' whereby staff are able to gain access to patient information only where there is a clear 'Need to Know'. In particular, significant challenges are perceived in relation to data sharing with other agencies, though interaction with social care is a key component of 'Delivering for Health'.

- Overall, therefore, there are a number of significant challenges in determining the appropriate way forward for General Practice computing:
  - the general practice patient record is the most comprehensive electronic patient record currently available. However, there is still great variation in scope across Scotland. Many practices are pursuing the direction of paperlite or paperless records. They will need systems that allow this to be possible, in particular in supporting the actual patient consulting environment for real time recording of notes etc. If Scotland is to have a universal infrastructure of electronic health records all practices will need to move towards full electronic recording and phasing out of the routine use of paper based notes;
  - systems within general practice are now key to supporting the GMS Contract, associated patient care requirements and related remuneration of general practitioners. These requirements will continue to change over time, as will other related functionality of the system such as best practice advice, protocols, decision support, new recording requirements etc. These will, therefore, continue to be dynamic systems in need of regular and significant update and enhancement;
  - the concept of 'General Practice Systems' may be outdated in the medium to longer term within the strategic direction to expand care delivered in the community with a wider range of services, facilities and professionals caring for patients in a 'network' approach. Avoidance of multiple fragmented patient records, and creation of a manageable and maintainable overall eHealth application architecture, suggests a possible shift towards more integrated primary and community care record systems with a wider scope and usage. There are, however, significant challenges associated with the development and deployment of such systems related to acceptability and ownership, maintenance of data quality, and maintenance of the confidentiality of patient information.
- Whatever the way forward, it will also be vital to ensure continuing cognisance of the key role of general practice computing as a source of morbidity and other information important to health assessment and the development and delivery of public health policy and strategy.

Conclusions

Based on the foregoing discussion the following conclusions can be drawn:

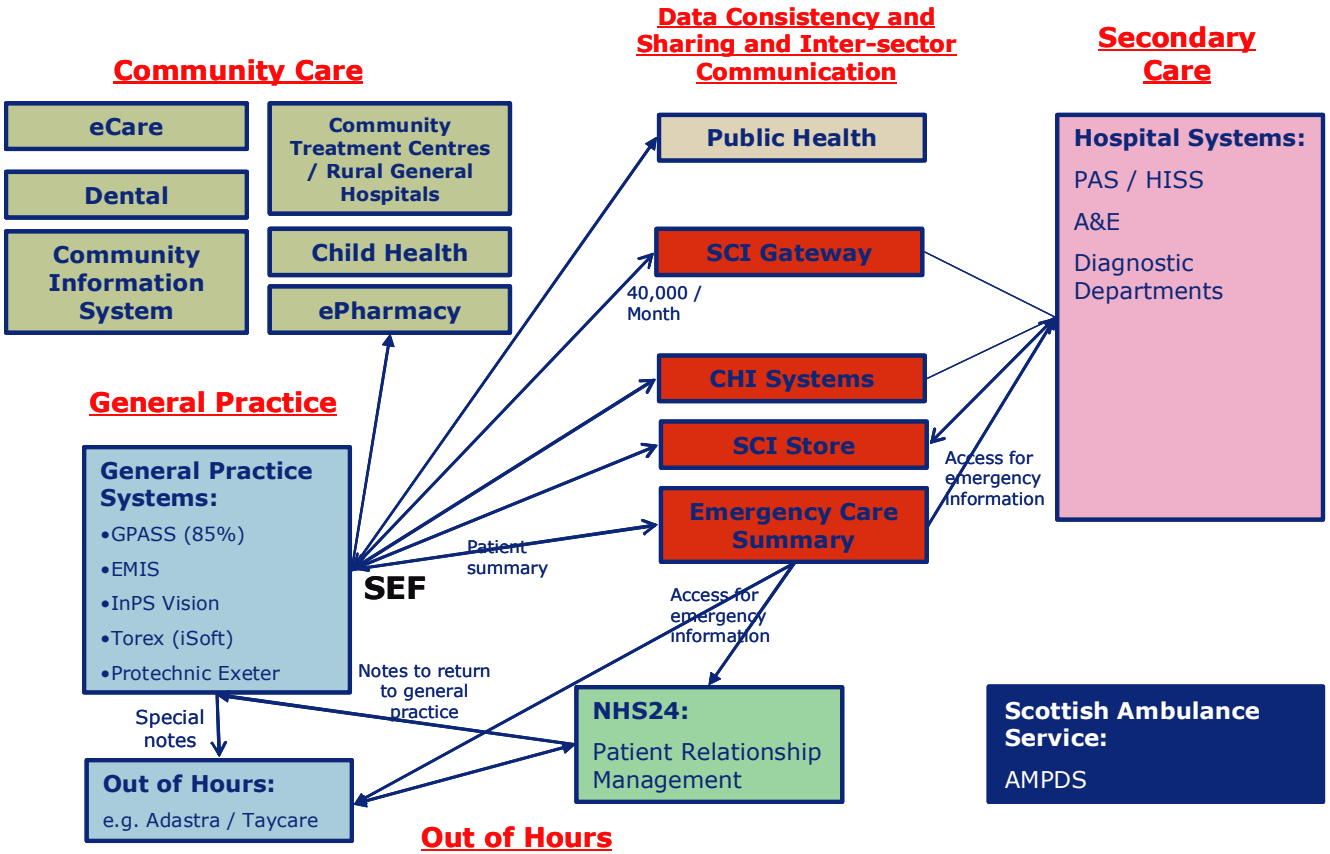
- NHS Scotland is seeking to implement a comprehensive health information system built around an Electronic Health Record to support the achievement of the objectives set out in 'Delivering for Health'. General Practice computing is vital to supporting the delivery of patient care at general practice level. However, it is also a key part of the future overall health information system. In finding a way forward for General Practice computing any solution needs to also consider the requirements of general practitioners and other primary and community care staff and the need to fit within the wider framework of NHS Scotland's health information system;
- a comprehensive health information system requires better integration between applications used in primary care and the community and with secondary care applications if multiple patient records, multiple versions of patient data, and incomplete records are to be avoided. If NHS Scotland is to make long term decisions about the future of General Practice computing it needs to be done within the context of clarity about the overall application strategy to deliver a comprehensive health information system;
- future General Practice computing is intended to provide far greater support and functionality during the actual patient encounter, as opposed to administrative support, and to be integral to care determination and subsequent management. It will, in due course, support a move to a 'paperless' environment. There will need, therefore, to be a very robust technical environment to ensure effective system management, availability and security. The present environment of practice based servers is not consistent with this requirement, hence the planned move to a Managed Technical Service environment, albeit progress to date has been difficult;
- achieving the above is unlikely to occur in the most effective and efficient manner through individual practices migrating to a range of solutions. Indeed, many consultees have stated that the worst possible outcome to the current circumstances would be for Scottish practices to diversify across the available five existing accredited general practice systems. Efforts by Tayside and Grampian Health Boards to achieve Board-wide solutions based on a Managed Technical Service reflect this concern. Scotland needs a carefully planned and managed way forward if it is to meet both the needs of general practices and the wider eHealth Strategy to support 'Delivering for Health'.

Strategic Context – eHealth

- NHS Scotland's eHealth Strategy is intended to build on progress that has already been made. It is anticipated that a number of systems will be procured, together with the tools to 'join them up'. It has been concluded that there is no single system that will cover the full range of eHealth requirements.
- The current infrastructure around GP systems reflects the need for links to other systems for purposes of data consistency, and communication and data sharing between healthcare sectors and clinical professionals. Examples of key linkages with GP systems include to:
  - the CHI in relation to key patient demographics and identifiers;
  - SCI Store for data such as laboratory results, though this is not universal, and has not been implemented for commercial systems, although there are examples of direct links to laboratory systems;
  - SCI Gateway for communication of referrals to secondary care, currently accounting for around 60% of referrals (only GPASS at present);
  - ECS to provide a very limited but vital set of patient information for use in urgent or emergency situations (only GPASS at present);
  - a requirement for ePharmacy functionality to link with community pharmacists.
- These existing links reflect the existing network nature of healthcare delivery and the need to communicate and share patient information, for the purpose of providing patients with the best possible care.

eHealth Context

The diagram below schematically represents the range of systems and some of the linkages surrounding general practice systems. It identifies the number of systems in which discrete patient records can be created. Of particular relevance is the spread of systems across general practice, Community Care and Out-of-Hours Services. At present, these systems are focused on professional groups and functions rather than individual patients. This structure was recognised by many consultees as an impediment to appropriate information sharing between professionals caring for the same patients. Any future development needs to take account of this requirement to facilitate information sharing, whilst recognising that there are important associated confidentiality constraints which must be addressed.



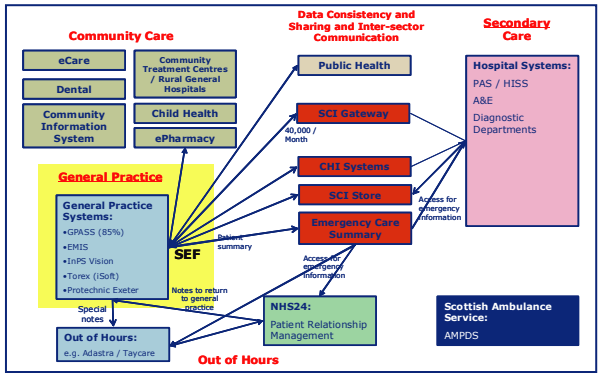
Application Strategy Scenarios

The way forward for GP systems cannot be considered in isolation. It needs to be considered in the context of related application areas. Three high level strategic scenarios have been identified:

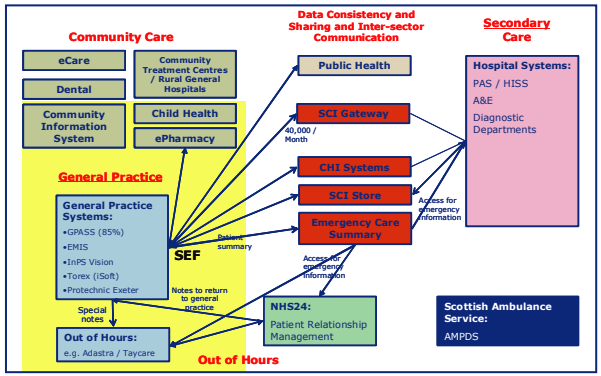
- **Scenario 1** focuses simply on addressing a solution for GP systems. In the context of a practice that wishes to change from GPASS this would involve procuring an alternative application focussed primarily on providing functionality for general practice;
- **Scenario 2** recognises the wider 'primary and community healthcare team' and focuses on a solution to meet requirements across a wider range of healthcare professionals and care settings. At a simplistic level this can be regarded as seeking an integrated Primary and Community Care Patient Record. It needs to be recognised that the extent of data sharing would need sophisticated control. In particular, some data recorded by, and accessible to, a patient's GP may not be appropriate for access by all healthcare professionals;
- **Scenario 3** also includes the functionality undertaken at present in Scotland by the Emergency Care Summary. At present, this physically separate system reproduces data held in the general practice system, comprising a slim subset that poses no risks to patient confidentiality in the context of widespread access. Many consultees expect this dataset to increase over time. However, some practitioners harbour significant concerns about such a development. An option would be to control access to the dataset within the originating system.

At a strategic level, the selection of a preferred direction should be determined based on the potential benefits to healthcare delivery, fit with the wider eHealth systems architecture, and the availability of appropriate software products. These issues are addressed in later sections of this document.

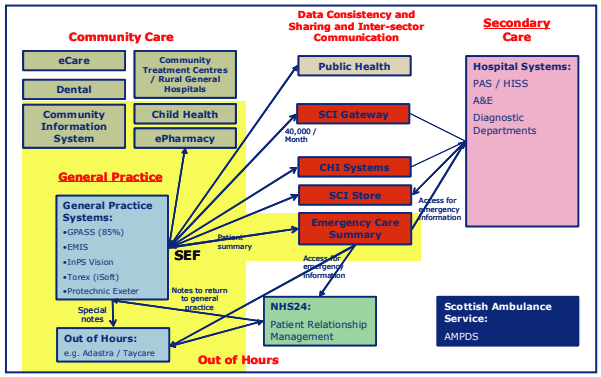
Option 1 – General Practice



Option 2 – Primary Care and Community



Option 3 – Primary Care, Community and Emergency



GPASS

- During the consultation process a wide variety of views have been expressed about GPASS in terms of both the current software product (i.e. excluding GPASS Clinical which is not at present practically available) and the associated maintenance, development and support services. These have been almost universally unfavourable, with widespread disappointment that GPASS has not been able to meet the objectives and requirements set out in the 2002 and 2004 GPASS Review Reports. It is acknowledged that this study has only consulted with a sample of clinical representatives. However, the March 2005 GPASS User Group Survey identified that 57% of practices were not happy with GPASS, 63% were not happy with GMS Support, but only 26% were considering changing system although that rose to 45% if funding was available. The Local Medical Committee 2006 Conference motions are clearly also an indicator of the wider view on GPASS.
- A considerable number of documents have been submitted which highlight specific deficiencies of the current GPASS product and make unfavourable comparisons with other commercial products for general practice. These include:
  - the Tayside Business Case;
  - the Grampian Business Case;
  - a submission identifying desirable enhancements to support practice nurses;
  - the issues associated with GPASS' recent challenges addressing the Directed Enhanced Services for CHD reporting;
  - feedback from the GPASS Users Group National Executive.
- Additionally, the consultation process has revealed a number of concerns and complaints about the current GPASS product and the associated support services.
- The GPASS team has identified that there are a range of outcomes which should be acknowledged in respect of the current GPASS product, including:
  - in 2004/05 Scottish practices, in terms of their QOF achievements, averaged 961 points against an average from England of 958 points. In 2005/06 GPASS practices averaged 1023.68 points, the highest score for a system in Scotland, although the other systems' results were very similar, all scoring above 1022.53, suggesting individual system choice is relatively immaterial;
  - to date all of the patient data provided to the ECS has been from GPASS practices;
  - 40,000 referrals per month are made electronically from GPASS practices to secondary care via SCI Gateway;
  - only GPASS practices are receiving patient results via SCI Store which is the national strategy for such communication, although it is acknowledged that this capability is far from universal.
- Nevertheless, the GPASS team acknowledges that the current GPASS product does not meet current requirements and the recommendations from the previous GPASS Reviews, and the GPASS Clinical product, developed by AxSys Technology, which has not as yet been able to be deployed effectively, is the key solution to meeting the current requirements of general practices, in particular in respect of clinical functionality.
- There has been favourable response to GPASS Clinical based on the demonstrations that have been made. However, to date it has not proved possible to deliver GPASS Clinical via the Managed Technical Service due to performance problems. Its current status is that it is installed in two practices on local servers and is undergoing beta testing. Feedback indicates a complex implementation process, printing issues, disappointment with some of the functionality and significant user dissatisfaction. Hence, despite some good evaluations, GPASS Clinical is not at present a fully deployable solution.

Current Status of GPASS

GPASS (core product)

The GPASS application was originally written for a 'stand alone' environment and includes processing within the database layer. As such, when delivered in the MTS environment it was found that a single database would not have optimal performance. Therefore, in the MTS environment, it was decided to create 4 databases: GP, Read Codes, Drug Dictionary, and Reporting. This makes it more complex to administer and is a sub-optimal architecture.

Crucially, the GPASS core product is not currently modularised and as a result needs to be entirely re-created whenever a defect fix is released. This increases the risk of application regression with previous product features either being over-written or corrupted.

The GPASS development team has indicated that, as the architecture stands now, there are often regression issues. This is reflected in the feedback from users and current concerns about the impact of implementing fixes and upgrades.

As can be seen from the schematic (adjacent and overleaf) there are a range of add-on applications and tools to provide functionality not available within the core GPASS product. This results in increased complexity, regression issues and maintenance effort.

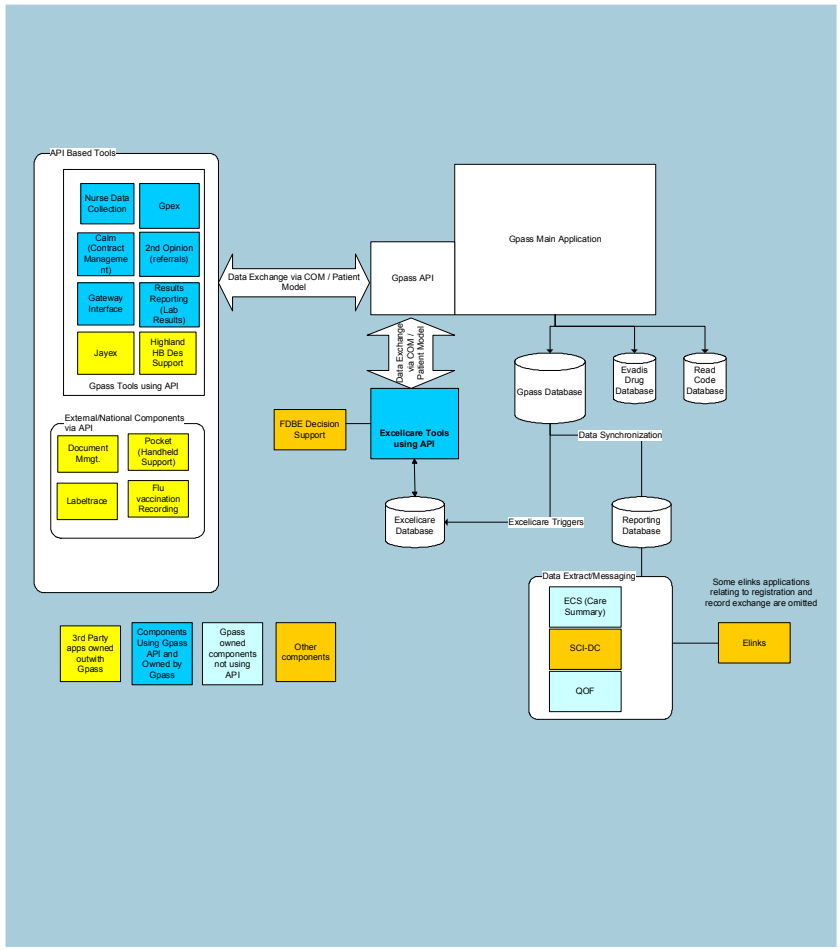
The GPASS core application is currently built on the following technology base:

-Application language: Delphi 5 and Visual Basic 6;

-Database: MS SQL 2K for MTS and version 6.5 for the standalone installations;

-Integration interface: COM API.

GPASS Clinical



Source: GPASS

Current Status of GPASS Clinical

In response to the Ritchie report, the GPASS team selected AxSys Technology as its partner to provide the clinical interface to the existing GPASS system to create "GPASS Clinical". Upon review it is evident that this is an integration of two distinct systems.

Excelicare (AxSys Technology)

The Excelicare product is a modularised package based on the following technology base:

-VB 6;

-MS SQL Server 2000.

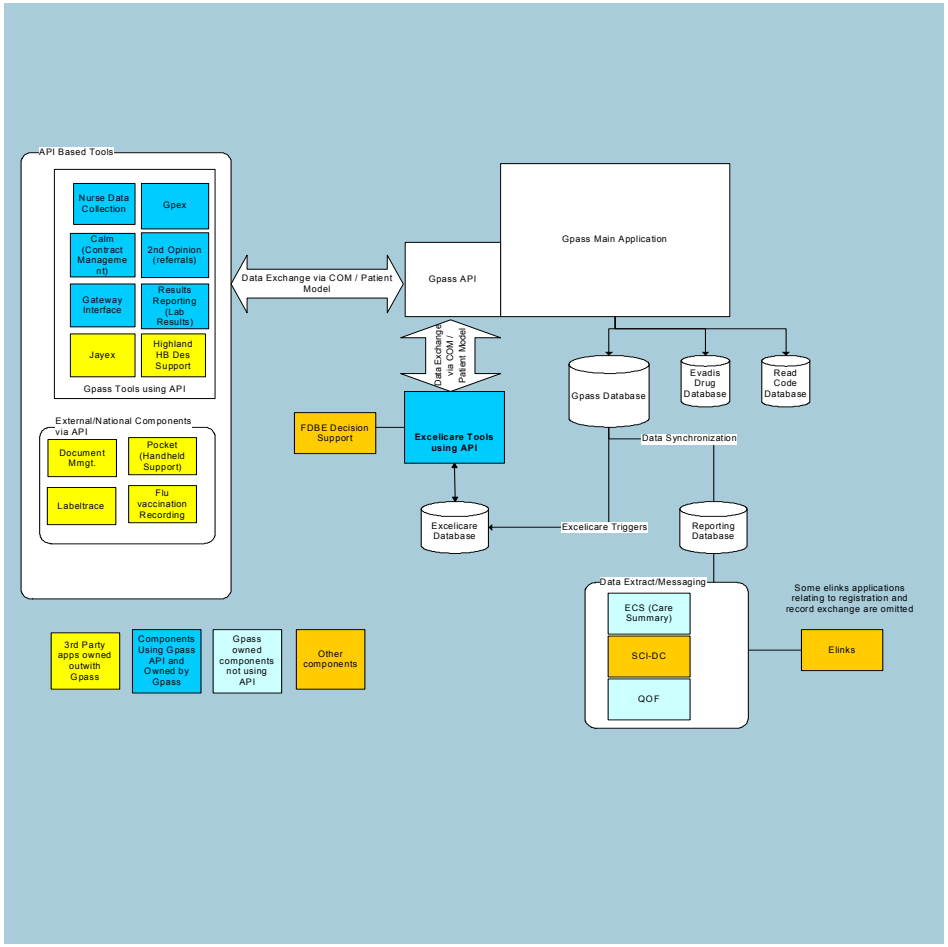
Excelicare has two databases that share some common data with GPASS, such as the patient list. This has introduced issues of data duplication and performance issues. Excelicare was designed as a user interface for clinicians that would integrate with an administration and transaction engine.

Integration: GPASS Clinical

AxSys Technology developed the Excelicare product in response to a specification from GPASS. In 2004, when AxSys Technology was engaged to integrate with GPASS, an original guiding principle was that no changes could occur within the GPASS code and that all interaction would be done through the COM API.

The GPASS development team has indicated that the COM API was not designed with multiple interfaces in mind. However, over the years the number of interfaces have proliferated (see figure), resulting in increased complexity, overheads and regression potential.

GPASS Clinical



Source: GPASS

Current Status of GPASS Clinical

As a result of the architecture and the Excelicare layer, GPASS Clinical must do additional processing to send data to the core GPASS application.

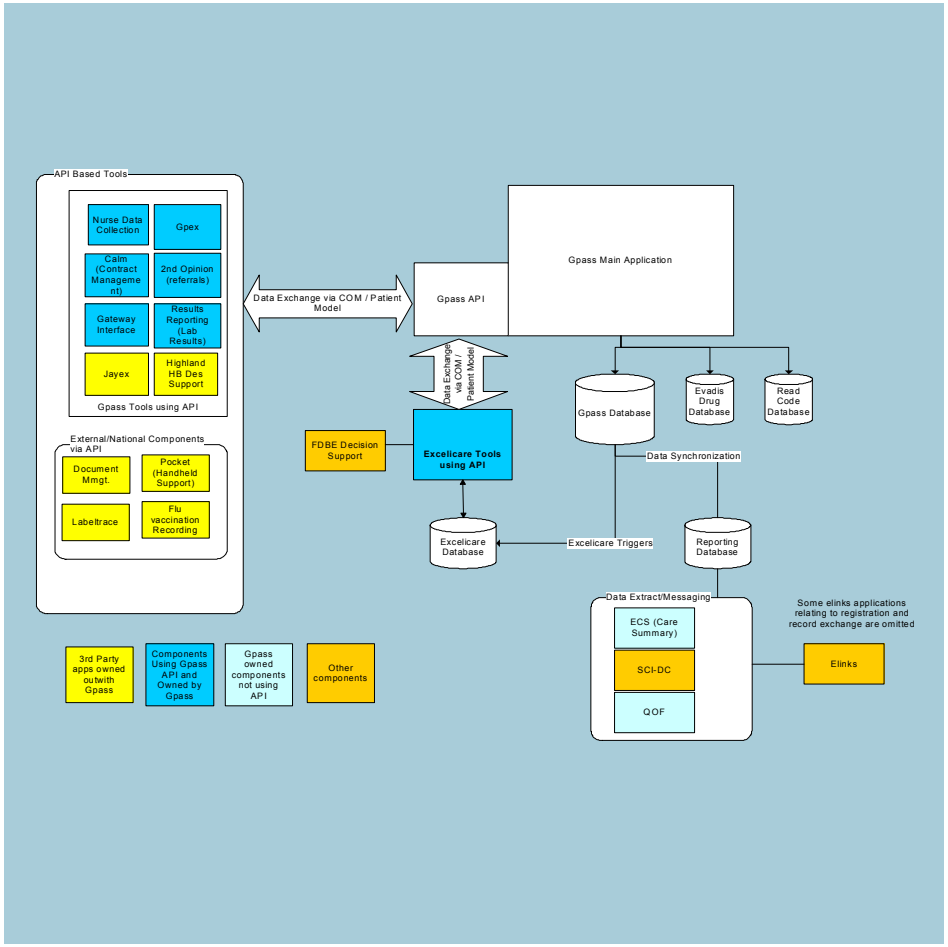
Both development teams (GPASS and AxSys Technology) have indicated that this approach is less than optimal as it creates duplicated data, and adds processing complexity and administrative overhead. The result of this has been performance issues which to date have prevented progress with deployment of GPASS Clinical.

The GPASS development team has indicated that in future there would need to be a re-architecting of the core GPASS product to make it modularised. This would also involve revisiting the COM APIs and a change in language base.

There are efforts to migrate some of the GPASS database functionality to Excelicare and consolidate data. However, both teams indicate that a full consolidation has not been planned.

When the two systems are integrated, this creates a 2-tier architecture with a "fat client". In an MTS environment, the "fat client" must be delivered via Citrix. The current architecture is mature. The GPASS and AxSys teams have indicated that, ultimately, a 3-tier architecture would be more optimal and that a browser-based user interface would negate the need for Citrix.

GPASS Clinical



Source: GPASS

GPASS Immediate Technical and Functional Roadmap

The GPASS development team has indicated that the main objectives for the remainder of 2006, in addition to an effective deployment of GPASS Clinical, are to address delivery of the majority of the outstanding Ritchie functional recommendations, including the following:

- completion of updating tools to support the Directed Enhanced Service and Quality Outcome Framework (QoF);
- advanced search functionality;
- delivering patient action list managment;
- implementation of laboratory results reporting;
- accrediting and delivering GP2GP;
- supporting ePharmacy;
- integrating with the MTS framework and becoming ITIL compliant;
- delivering primary care systems for:
  - Scottish Prison Service;
  - State Hospital.

NB: In certain cases, such as laboratory results version 1.3, the GPASS development team has indicated the need to delay some objectives based on the prioritisation of limited resources.

GPASS - Organisational Capability

The GPASS team has recognised that the organisation must transform to address acknowledged development needs:

- the development team has related that there is a lack of testing resources, testing processes and technical test environments. A review of testing processes is currently being undertaken. As the GPASS product is not modularised, the entire application needs thorough regression testing before it is released. Given that this has been recognised, it would be expected that there would be adequate test resources and a rigorous testing process. The team has indicated this is an important organisational weakness;
- another challenge that the team has commented on is requirements assessment and release management. The development team has indicated that often specifications are not clearly defined, but are perhaps not challenged sufficiently internally. The result is a version of software that is developed to an imprecise specification. This would be expected to compound issues if the application is not fully modularised, as regression issues could arise and new problems could be introduced to areas of the product that may have been stable in a previous version. Normally, requirements triage and the management of a release cycle is a function of release management. The team has indicated that this was a root cause of the DES CVD defect (per the memorandum date 23 May 2006);
- it has also been indicated that there is a need to strengthen capability in the area of project management.

Additionally, it should be recognised that in terms of access to skills and development capability, GPASS had to outsource the development of GPASS Clinical to AxSys Technology, and additionally a range of functionality in the core GPASS Product is provided by third party suppliers.

GPASS has also recognised its weaknesses as a support organisation (an area frequently highlighted by consultees) and has indicated its intention of supporting ATOS within the MTS service desk and becoming a more effective 'service provider' organisation. To do this, GPASS is planning to create an ITIL-compliant service desk organisation. It is anticipated that this will take three to six months to achieve. This is a complex process to undertake in parallel with a major product development shift. Given the recent history of GPASS and the organisation's current design, the organisation may be significantly challenged to transform itself and deliver a quality product in parallel.

Challenges to Further Investment in GPASS

- The GPASS Core Product (pre GPASS Clinical) has provided a useful tool for general practitioners in Scotland. It has been developed and improved over the years to meet changing requirements, including one major redevelopment to create 'New GPASS', the current core GPASS product. As such, it has met the needs of general practitioners in Scotland over many years. However, at present it is no longer meeting the needs of general practitioners.
- GPASS Clinical is the core solution for meeting immediate user needs. However, despite some favourable response to GPASS Clinical based on the demonstrations that have been made, GPASS Clinical is not at present a fully deployable solution. The outcome of the ongoing product improvement process is presently unknown.
- The architecture, design and functionality of the core GPASS product were not designed to meet the increasingly sophisticated functionality required to support the delivery of current clinical care. Even if deployed successfully, GPASS Clinical can only be an interim solution in terms of meeting future requirements to support 'Delivering for Health'. Due to the architecture, there will be inherent maintenance issues. Currently, there are two distinct systems, core GPASS and Excelicare (AxSys Technology), and it remains the case that the core GPASS product, without a major redesign and redevelopment in terms of its underlying technology, its functionality and its deployment and delivery, is not a long term platform on which to provide a product that can meet the challenges of:
  - a sophisticated environment where the system is increasingly a key component of providing safe, high quality care, with rapidly changing requirements and a need for regular updating and enhancement;
  - a need to expand the functionality provided to support other healthcare professionals and support integrated patient records across primary and community care;
  - a need to provide larger patient databases which match the responsibilities of organisations such as Community Health Partnerships and NHS Boards, i.e. enterprise level systems;
  - a requirement to be delivered in a technical environment that allows easier management and upgrading, i.e. in a hosted environment with fewer databases, and less versions of application software and reference data to maintain.
- Significant organisational transformation is required in parallel with the product transformation highlighted above. There are acknowledged weaknesses in project management, testing processes and release management, and lack of resource in terms of both staff and testing environments. These are particularly challenging areas given the status of the product, the complexity of user requirements, and the multi-party delivery environment.
- There is no clarity at present as to the total cost, in terms of money, time and resources, to take forward the necessary developments and organisational transformation.
- The required organisational transformation is considerable and it is not clear that the GPASS organisation has the capacity to achieve this, or, indeed, is organisationally positioned to achieve a successful outcome to become a high capability, innovative organisation with access to the required investment levels and skills.
- **NSS is clear that if the direction of travel is to provide support for the extended primary care team, then GPASS was never designed to provide such support and on that basis NSS is content that a strategy for migration is required.**

GPSOC and Other System Suppliers

GP System of Choice – England: Connecting for Health

In considering other suppliers and systems there needs to be an awareness that the UK market is dominated by England with approximately 10,000 practices. Arrangements are managed under a new scheme 'GP System of Choice' which relates to a series of compliance levels as shown in the table below. The compliance levels highlight new functionality that is required and, in particular, highlight a direction towards data centre hosted solutions and a need, in due course, for full integration with a multi-sector LSP Care Record. The underlying expectation is that most practices will remain with their existing system and supplier and make progress as each supplier develops their system against the compliance levels. This will avoid instability in the market and avoid the need for system changes which is disruptive. A practice can change system with the proviso that in changing they need to make progress against the compliance levels set out below. Clearly, suppliers' development efforts will necessarily be strongly influenced by the GPSOC framework.

Ultimately a fully integrated LSP Care Record is envisaged across all care settings, including community functionality and potentially removing the need for distinct 'GP systems'. However, with regard to community functionality, an option is that this is addressed by GP systems developing into this space, and certainly GP system suppliers are responding to this opportunity.

Compliance Level	Description
Level 0	RFA 99, QMAS/QOF and Information Governance
Level 1	Choose and Book, Personal Demographic Service access / update capability
Level 2	Electronic transmission of prescriptions
Level 3	GP records transfer capability (GP2GP)
Level 4	Data centre hosted solution (MTS)
Level 5	Access / update capability to summary patient record within 'the Spine'
Level 6	Fully integrated with the LSP Care Record
Fully Integrated	Service system across all care settings

At a Glance:
The Commercial Market

The dominant commercial suppliers in England (and in Scotland in terms of practice numbers and assessments of their systems) are EMIS and InPS (In Practice Systems). Both suppliers have indicated that whilst their growth in the Scottish market is challenged by the present dominance of GPASS, they are hopeful that the GP 'choice' initiative will allow them to gain market share. Both companies have invested in cultivating the Scottish market and have ambitions to acquire a significant number of practices.

Both companies have begun introducing enterprise editions of their systems as well as offering hosting and managed services from their data centres. Both believe they are well positioned to deliver integrated solutions that will link clinical, primary, community and secondary care applications as well as support an "electronic patient record".

emis designed for healthcare professionals	EMIS is a supplier in UK primary healthcare, hosting over 39 million electronic patient records (EPRs) within its systems. EMIS IT solutions and services are delivered to the NHS primary healthcare market. EMIS head offices are based in Leeds, including development and support. EMIS provide hosted support from their data centre in Leeds. **Offices**: Leeds, Canada (Edmonton, Alberta) and Australia (Perth and Melbourne): 840 employees worldwide **UK Market position**: 58% of the English market with 6,000 sites; 50 sites in Scotland **Revenue:** £52M annual turn-over **Product**: LV, PCS, PCS Enterprise, E-MIS Web (2007) **Current product technology base:** .Net, C (2005); .ASP and Java, browser -based user interface (2007); SQL Server 2005 **Enterprise/managed service sites:** over 400 **Mint UK QuiScore 31.12.2004:** 96 Secure (measure of likelihood of company failure in subsequent 12 months)
inps	InPS (In Practice Systems) is a UK supplier of clinical management systems being part of the CEGEDIM Group since 1999 (group revenue - €350M). InPS supplies healthcare technology and information solutions to over 30,000 GPs, pharmacies and pharmaceutical manufacturers across Europe. InPS offer a hosted enterprise application from their London data centre. **Offices**: London, Coventry, Dundee **UK Market position**: 25% of the UK GP computing market with 2,000 sites in England. Preferred supplier for Tayside and Grampian. **Revenue**: £25M annual turn-over **Product**: Vision 3, Vision 4 (2007) **Current product technology base**: C, .Net, SQL Server 2005; Java and ASP in 2007 **Enterprise/managed service sites**: 400 sites **Mint UK QuiScore 31.12.2004:** 75 Stable (measure of likelihood of company failure in subsequent 12 months)

EMIS

emis designed for healthcare professionals

- EMIS does not have any relationships with LSPs making it the preferred general practice solution for individual clusters. However, it is the present dominant market supplier.
- At present EMIS has two main GP system versions – LV and PCS.
- 1,000 PCS sites – 350 on 13 hosted managed service solutions, accredited to BS7799 information security standard:
  - typically 50 practices with shared Master Patient Index;
  - South London (69), Huddersfield (58), Sunderland (28);
  - consent / role driven access.
- EMISweb for Community Staff:
  - appears to be part of EMIS' strategy to retain its market base outwith relationships with LSPs;
  - web based technologies, modularised design, intended for an enterprise environment;
  - now through beta testing, currently being rolled out;
  - modules for district nurse, health visitor, school nurse, therapists, child health, urgent care;
  - with consent, community staff can share access to the GP record: Integrated Primary Care and Community Record.
- EMISweb GP specific functionality (upgrade route for LV and PCS) will be in beta testing in fourth quarter 2006 with anticipated deployment in 2007.
- Envisaged architecture includes both use of the hosted EMISweb enterprise application over N3 or use of the local GP application with data streamed to the enterprise, cross health community application (PCT level). Reverse streaming is also envisaged to maintain back up disaster recovery copy on local practice server. EMIS is also participating with other suppliers in Wales to contribute data to regional locality patient data repositories.

InPS

- Currently circa 2,000 practices (England 1,500, Wales 240, Northern Ireland 110, Scotland 70).
- InPS is the preferred GP system in London under the LSP, BT, and is anticipating further contractual relationships with other LSPs in due course.
- The current product is Vision 3. It can be provided as a local deployment or as a hosted solution from either InPS' data centre, or a local data centre, over N3. Currently, around 400 practices are on hosted solutions. Primary Care Trusts are interested in hosted solutions to avoid server replacements, meet GPSOC push towards hosted solutions, and remove practice IT management overhead and skills requirement.
- Vision 3 started as a GP clinical system, but has templates for community staff and provides audit support. It is practice / patient centric and the architecture does not meet all community requirements as it stands (e.g. community staff member with 50 patients spread across 5 practices, though could log-in to hosted solutions).
- InPS took over Saragon and its product, now Central Vision, which is intended as a health community wide patient dataset, including secondary care. This is in use in Tayside where GPs can access patient data on Central Vision.
- The next generation system, Vision 4 which is in development, is an Oracle application with a web technologies deployment. It is intended to be a hosted only solution, with an enterprise level dataset, and one version of the core code for the UK (though local additions for each country will probably be needed). It will include Vision 3 functionality plus much of Central Vision, and include controlled, role based access.
- Vision 4 will be released for testing by LSPs in 2006 and is intended for live operation in Quarter 2, 2007, with full functionality by end 2007.

The Phoenix Partnership

- The Phoenix Partnership is a relatively new supplier having been formed in 1998. It is a small organisation based in Leeds and has 80 staff. It started in the Airedale / Bradford area, won customers in North Lincolnshire and South Essex, and more recently has expanded in the North and South East clusters through a relationship with the LSP, Accenture, being an alternative to the iSOFT offering. Currently, it has approximately 300 practices. Growth is targeted at an additional 500 practices over the next year, as are relationships with other LSPs.
- The solution, System One, was designed as a single centralised, hosted solution. It is presently run from a BT hosted data centre, but with TPP undertaking all application monitoring, maintenance and upgrading. There is one version of the database (SQL) and application software (Java). It is a 'fat client' but does not require a Citrix environment. A check and upgrade where required of the client is performed each time the client is logged on. It is claimed by the supplier that the current configuration is scalable to cover the whole UK population. 1,000 practices requires circa 16 blade servers plus a DR site installation.
- Where a patient moves between practices, the practice indicator is changed. The previous practice can continue to see the data it entered. The new practice can see all data about the patient, i.e. single record per patient with controlled access according to role. There is a separate reporting database which is updated overnight.
- Functionality is provided for general practice, administration, screening, practice nurses, community nurses, health visitors, therapists, podiatrists, child health, diabetes, out-of-hours, rehabilitation, palliative care, and separately prison health and STDs. Laboratory results are directed to a single TPP mailbox which directs the messages to the appropriate practice / patient records.

Supplier Market – Key Conclusions

- GPASS is likely to always lack economies of scale as a purely 'Scottish' system, in comparison with commercial competitors, given its present market of 850 practices and the possibility of losing a significant number of these in the near future. There appears to be considerable variation in attitudes and requirements between GP practices, with inertia reportedly a factor in many. However, there is no doubt that GPASS has lost the confidence and support of a considerable part of its market:
  - NHS Tayside and NHS Grampian have secured circa 85% commitment to move to InPS Vision 3 (hosted solution), with Tayside committed to Vision 3 and subsequently Vision 4;
  - circa 50 individual practices have submitted business cases;
  - multiple 'beauty parades' have taken place in other NHS Boards as a result of dissatisfaction with GPASS.
- In future, 4 commercial suppliers in Scotland appears unsustainable if requirements continue to diverge from England. Users of the Exeter Protechnic system (15 practices) have expressed concern that the burden of Scottish requirements could cause their supplier to withdraw from the market. The replacement for the iSOFT product would appear to be Lorenzo. The number of practices required for a serious, sustained commitment to meet Scotland's requirements is unclear. Suppliers have suggested 200 – 300 practices.
- Commercial suppliers have recognised that market requirements (partly driven by England's GPSOC, but occurring in any case) are moving towards hosted, enterprise solutions, supporting a wider spectrum of primary and community care staff. Examples of these types of deployments already exist. Additionally, suppliers have embarked on major redevelopments of their systems to better meet these requirements with further major deployments expected in 2007. It should be noted that iSOFT is also redeveloping its applications under the 'Lorenzo' initative.
- MTS testing and SEF compliance implementation will be undertaken in Scotland for commercial suppliers over the next few months. This should be used to further confirm their integration capabilities with their existing systems in a Scottish environment.

Supplier Market – Key Conclusions continued

- Despite all of these developments, this will remain a dynamic area of system change (QOF changes, enhanced services, new models of care, changing professional roles, decision support, public health data requirements) requiring responsive and highly effective suppliers with strong track records and access to sufficient investment resources.
- Although all of the key suppliers are undertaking major development, and addressing wider community requirements, the long term applications model within which GP system suppliers will need to provide their systems and ensure interoperability remains unclear. It is a competitive market going forward, several of the suppliers are in absolute terms small organisations, and in this context it is unclear on a 5 year horizon which suppliers and products will emerge as the leaders in a marketplace dominated by England.
- There is a clear risk, therefore, that should Scotland choose now to back one particular supplier, it is difficult at present to be certain that the chosen supplier will emerge over the next few years as a dominant supplier in the UK market with a leading product.

Strategic Scenarios

Strategic Issues

- Firstly, it needs to be recognised that 'GP Choice' is a consequence of the GMS Contract and if exercised individually by practices could result in varying decisions on application choices. As such, this would not represent an optimum strategic way forward, but is a possible outcome. It is assumed here that a more planned and managed way forward for Scotland can be agreed with the clinical professions, which would subsequently be followed by a significant percentage of practices.
- With respect to the future strategic direction of GP IT in Scotland, the first major issue is the scope of applications that will address the requirements of general practice, the choice being between:
  - a focus primarily on the scope represented by current applications, that is the needs of general practice administration and the functions and care undertaken by general practitioners. Under this scope it can be expected that there will be some functionality provided for other healthcare professionals within the practice; or
  - a much broader focus on the wider requirements of primary and community care, including out-of-hours services and potentially child health and emergency / urgent care.
- The second major issue, following a decision about scope, is the primary approach to delivery:
  - the first route would be to build on the current GPASS product set;
  - the alternative would be to procure an alternative solution from a commercial supplier;
  - within the context of both of the above, there is also the issue as to whether Scotland seeks to have a single system, or more than one system, across Scottish general practices.
- The above issues are combined in a set of strategic scenarios described overleaf and shown subsequently in diagrammatic form.

Scenario 1 – Invest and develop GPASS (Status Quo)

- This would comprise of a strategy which focused on the GPASS product set (in particular GPASS Clinical) as the core solution to meet General Practice IT requirements in Scotland, with a view to retaining a high percentage of practices as users. It is presumed that system choice would still remain available to practices, based on business cases, as at present.
- It would need a significant continued investment in the GPASS product set, to:
  - complete the GPASS Clinical development;
  - complete the transition to delivery over the MTS;
  - complete other key developments such as patient action list management, universal laboratory reporting via SCI Store, support for pharmacy developments, GP2GP capabilities, dispensing functionality, improved user searching and reporting interface and capability, access controls.
- It would require redesign and redevelopment of the solution to ensure a normalised, modularised system. This would need to include the transition to an 'enterprise version' of GPASS. This would probably include transitioning to a full three tier browser based architecture.
- To achieve the above GPASS would require effective, secure commercial arrangements with suppliers of third party products and services, in particular the selected software development partner (currently AxSys Technology).
- GPASS would need to transition its organisational form, with reduced emphasis on software development and maintenance, and a far greater focus on product management and control, and customer support.

Scenario 2 – Replace GPASS through procurement of an alternative general practice application

- This option would involve replacing GPASS through procuring a replacement application focused primarily on meeting the immediate needs of general practices. It is assumed that the solution would most probably be sourced from one of the leading commercial providers of general practice systems, as a minimum accredited against the SEF, and would be delivered over a managed technical service. It is also assumed that central funding would be provided.
- There are a number of variants according to the procurement strategy that is followed:
  - **Variant 1 – Free Market:** The quickest approach would be to allow individual practices to access systems based on the existing framework arrangements with the four SEF accredited suppliers. There is further work to be undertaken to negotiate final prices, however this could be completed relatively rapidly. Current evidence suggests that this approach might result in EMIS and InPS gaining the vast majority of Scottish general practices;
  - **Variant 2 – NHS Board Level:** The approach followed in Grampian and Tayside could be followed whereby individual NHS Boards encourage practices in their area to adopt the same system, using nationally agreed prices or negotiating local prices;
  - **Variant 3 – National Level:** A process could be undertaken to select a preferred system for Scotland, thereby reducing the choice from four systems at present to a single system (it is possible that two suppliers might be selected, thereby reducing variation but maintaining some choice). This could be undertaken through a further assessment and selection stage with the four suppliers on the existing framework. Any other suppliers seeking to be involved in this process would require to first gain SEF accreditation.
- Given that timescales could be relatively short to complete the above and make access to alternative systems available to general practices, GPASS could be placed on a care and maintenance basis, although it would need to be recognised that it could take a significant period for all practices to implement new systems.

Scenario 3 – Replace GPASS through procurement of an alternative general practice application, but with additional functionality addressing wider eHealth requirements within primary care and community settings

- Consideration was given to the possibility of developing this option through building on the current GPASS products. However, given the challenge this would represent in terms of software development to deliver a hosted, enterprise application with much broader functionality, the acknowledged weaknesses of the GPASS organisation, and the current status of market products, this is regarded as a high risk way forward.
- This option would involve first ensuring clarity over the application strategy under eHealth across the range of patient record systems currently utilised in primary care and community settings and the integration requirements to the other parts of the eHealth systems infrastructure. Once this was clear a specification could be developed that addresses the needs of general practices as well as additional data recording, functionality and integration requirements as determined to support other healthcare professionals and care processes.
- A procurement process would be required to select a supplier(s) that could meet the full range of identified requirements, including the necessary integration within the developing overall eHealth architecture.
- It is likely that a solution under this option would be based on the products of one of the existing commercial general practice systems, but potentially with a need for further development in some functional areas as is currently being undertaken by suppliers. Additionally, given the scope the architecture is likely to reflect an organisational focus at a higher level than individual general practices, possibly CHPs or NHS Boards, or even national, i.e. hosted, enterprise solutions. This would add further complexity in respect of requirements for access and confidentiality controls.
- It is recognised that this option would involve significant challenges in terms of gaining clinical involvement and buy-in which would be vital to its success. This, together with the complexity of the application strategy development, specification process and procurement, would lead to significant timescales. Given this, it is likely that there would be a need to address to the best extent possible general practices' needs in the interim through completion and roll-out of GPASS Clinical to those practices that wanted it once it was of proven functionality and resilience.

Deloitte.

Strategic Scenarios and Associated Issues

General Practice Systems:

- **GPASS (85%)**
- EMIS
- InPS Vision
- Torex (iSoft)
- Protechnic Exeter

Requirement to move to data centre hosted solutions

Requirement to move to enterprise solutions

Requirement for web based technologies

GP Only (+ SEF)

Increasing change management challenge to achieve commensurate benefits

Confidentiality challenge / role based access

GP, Primary & Community

Scenario 1

Invest and Develop GPASS

Major development required

Organisational capacity an issue

Is this core NHS business

Scenario 2

Replace

Free Market (framework)

NHS Board (framework +)

National (framework +)

Scenario 3

Invest and Develop GPASS

Probable unacceptable development and organisational capacity challenge and risk

Replace

Long timescale

Need for interim GPASS solution

Quality of market response

National (reprocurement)

Increasing timescale and need for interim GPASS Clinical solution

Increasing standardisation / integration / economies of scale

Increasing supplier commitment / priority for Scotland

Analysis of Strategic Scenarios

Scenario 1 – Invest and Develop GPASS (Status Quo)

Key Strengths:

- Standardisation and continuity. A large proportion of general practices in Scotland would be using the same product aiding integration towards a national electronic health record infrastructure, some familiarity and reduced training for new staff, although GPASS Clinical appears a major upgrade.
- This option may be lower cost than alternative solutions in terms of immediate capital requirements. However, there is significant development to be undertaken, much of which will be outsourced, and GPASS requires significant enhancement to its organisational capability. The additional cost associated with this is not clear at present.
- Retains GPASS as a contributor to national initiatives and a test bed for new developments.

Key Weaknesses:

- A successful GPASS Clinical product is not assured and a significant risk remains of poor performance in terms of functionality and technical delivery / resilience. This will have adverse effects on both efficiency within general practice and clinical quality.
- There remains a significant further development programme to provide additional capability within the product and redesign and redevelop core components. The recent development and delivery history of GPASS is poor and there is a significant likelihood of significant problems being experienced.
- User confidence would be very low in the short term, with a major challenge for GPASS to regain confidence and commitment. Any delays or failures could be terminal in terms of acceptability to users.
- A significant proportion of general practices can be expected to move away from GPASS, either on a self-funded basis or funded by their local NHS Board. This relatively uncontrolled migration away from GPASS could result in an increased number of general practice systems in Scotland with a material presence. This is likely to result in greater complexity and cost to enable required integration to SCI Store, SCI Gateway etc. (note the majority of consultees regard this as the worst possible outcome, although it is suspected that EMIS and InPS would gain the vast majority of market share at present although this cannot be guaranteed into the future).
- GPASS faces a major challenge to transform itself as an organisation and integrate its support services with those provided by Atos Origin in relation to the MTS, and with third party product and service providers. It is not assured at present that GPASS has the skills, capability and culture to achieve this successfully. This would be a major challenge.
- GPASS has a much smaller addressable market than its main competitors, and consequently is unlikely to be able to match the investment levels available elsewhere. Under such circumstances it is always likely to struggle to match products offered by other suppliers.

Scenario 1 – Invest and Develop GPASS (Status Quo)

Transitional Issues:

- Although this option appears to have a degree of continuity, in practice this is based on the name of the product and the lead organisation. In effect this option involves major change in:
  - the underlying technology products and the technical delivery method, to transition to a hosted, web technologies based solution;
  - the design of the product, to address the need for a simpler solution with fewer add-ins, a more easily maintainable and developable application, and an enterprise version;
  - organisational arrangements, as GPASS would need a key strategic partner(s) and a transformation of its role and effectiveness.
- In practice timescales are likely to be prolonged, and from the users' perspective a major transition would still be required. It may be possible to undertake this through a series of developments as opposed to a single major transition, however in practice this may prove a more frustrating and time consuming process.

Financial, Technical and Commercial Risks:

- Core funding for the GPASS team over the past seven years has varied between £3m and £4.4m. The 2005/06 budget is £3m.
- It appears possible that GPASS may lose a proportion of its market over the near term future. Of the £3m budget approximately £1m is for chargeable services (training, on-site visits and handholding), which may reduce with a smaller market share. However, a substantial part of the budget related to maintenance and development of the application would not reduce significantly. No estimates are available of the cost for the required redesign and redevelopment of the GPASS product. However, these can be expected to be substantial and to be spread over significantly fewer practices in assessing value for money. There is a very significant risk of rising costs on a per practice basis.
- At a technical level the required redesign and redevelopment is a major undertaking. GPASS will need to undertake this in conjunction with commercial partners giving rise to additional organisational complexity. As with any complex software development there will be a considerable timescale (several years) and significant technical risk.
- A significant national commitment to major investment in GPASS can be expected to have a negative effect on current commercial suppliers in relation to Scotland. The smaller players could withdraw from the market. The larger players (InPS, EMIS) may remain on the basis that they would continue to win additional business, however the level of this business may not be sufficient to make Scotland a high priority market.

Scenario 2 – Replace GPASS through procurement of an alternative general practice application

Variant 1 – Free Market

Key Strengths:

- Provides access to a range of apparently successful products from a number of suppliers.
- Likely to be highly acceptable as provides free choice for general practices (subject to SEF) and funding.
- Speed of implementation. Whilst some further negotiation of prices is required, this option provides the quickest route to new systems for those general practices seeking rapid change.
- Competitive pressures in the market from multiple suppliers with consequent incentives to provide a high level of service to gain market share. Opportunity to benefit from innovation by suppliers with large markets and hence greater investment opportunities.

Key Weaknesses:

- These applications have still to be proven in a Scottish Managed Technical Service environment, although reference sites are available in England. New versions of these systems are expected in the near future, so possible significant upgrades will be required relatively quickly in Scotland.
- This relatively uncontrolled migration away from GPASS could result in an increased number of general practice systems in Scotland with a material presence. This is likely to result in greater complexity and cost to enable required integration to SCI Store, SCI Gateway etc. (note the majority of consultees regard this as the worst possible outcome although it is suspected that EMIS and InPS would gain the vast majority of market share at present, although this cannot be guaranteed into the future).
- Variation of systems within NHS Boards may make integration with secondary care more complex, dilute support expertise, and reduce scope to share data easily at CHP or Board level for public health purposes or cross-general practice services.
- Scotland may be accorded a lesser priority than England where suppliers have larger markets.
- Reliance on negotiating satisfactory arrangements for suppliers to respond to new Scottish requirements resulting from either different health policy and priorities from England or alternative approaches to building an overall eHealth infrastructure.
- Greater variation and hence additional training for staff moving between practices or locums.
- Potential significant capital cost for implementation. Lack of clarity at present over ongoing level and control of revenue costs and access to upgrades. Potential loss of economies of scale in terms of cost and expertise in the context of multiple systems.
- Complexity and additional costs during transition period which is liable to be prolonged given number of practices to migrate. Possible risk to integrity of GPASS product and support if key staff lost during transition period. Additional loss of expertise if GPASS team run down / disbanded.

Scenario 2 – Replace GPASS through procurement of an alternative general practice application

Variant 1 – Free Market

Transitional Issues:

- Left to a free market approach with decisions by individual practices, it may be expected that there would be an initial significant tranche of practices that would move away from GPASS, followed by a further gradual drift. It is not possible to predict numbers, however it appears reasonable to estimate several hundred practices would move reasonably quickly (for example, circa 150 in Grampian and Tayside as the core with perhaps a similar number from the rest of Scotland). It appears that the majority may move to InPS or EMIS. The speed of this movement may be limited by supplier capacity and achieving successful MTS operation and required integration.
- Effectively there would be no single transition, but rather a mix of general practice systems across Scotland, with continued low levels of change taking place.

Financial, Technical and Commercial Risks:

- Without a managed exit from GPASS, and it could be expected that a significant number of practices may not move to a commercial supplier, the bulk of existing costs for maintenance would continue to be incurred. Additionally, whilst there is a significant remaining user base, development would have to continue to meet essential changing requirements such as the QOF. There could be a rapidly rising average cost per practice, with additional costs being incurred for commercial systems.
- Technical risks with this approach arise from the need for significant system linkage to meet the needs of an integrated primary and community care record, which would require suppliers' systems to be integrated with other related applications to cover community activity and out-of-hours services, and the SCI products.
- Costs for commercial systems are not entirely clear, however an analysis of the currently available framework information suggests capital costs in the region of £7k - £10k per practice for implementation with ongoing revenue costs of circa £3.5k (this excludes hardware costs which are assumed to be addressed within the MTS business case). It should be noted that these are not fully negotiated prices and, therefore, cannot be regarded as fully reliable estimates. The local costs of transition are also not included.
- With the Scottish market fragmented across a number of suppliers, who cannot be certain of the scale of business they will ultimately gain, it is unlikely that best value prices will be achieved in completing negotiation of the current frameworks. Additionally, with business in Scotland spread across several suppliers, the extent of each supplier's commitment to meet specific Scottish requirements is likely to be reduced as opposed to a scenario of one or two suppliers.

Scenario 2 – Replace GPASS through procurement of an alternative general practice application

Variant 2 – NHS Board Level (variations from Variant 1)

Key Strengths:

- Still likely to be highly acceptable as provides opportunity for general practices to be engaged in the choice (subject to SEF) and funding. Tayside and Grampian experience suggest a large consensus is achievable, although a minority of practices can be expected to stay with their current system.
- Speed of implementation would still be relatively rapid, though it will take longer than Variant 1 as agreement will need to be reached within NHS Board areas.
- This more controlled migration away from GPASS is likely to result in less variation in general practice systems in Scotland. Integration within NHS Boards to SCI Store, SCI Gateway etc. should be aided by largely consistent systems.
- Support expertise, and sharing of data at CHP or Board level for public health purposes or cross-general practice services, should be aided as compared to Variant 1.
- Less variation and hence training for staff moving between practices or locums within NHS Boards.
- Potential better economies of scale in terms of cost and expertise as compared with Variant 1.

Key Weaknesses:

- Scotland may be accorded a lesser priority than England where suppliers have larger markets, though less variation within NHS Boards should aid this as compared with Variant 1.
- Reliance on negotiating satisfactory arrangements for suppliers to respond to new Scottish requirements resulting from either different health policy and priorities from England or alternative approaches to building an overall eHealth infrastructure. But, again this should be easier than under Variant 1.
- Suppliers may see less opportunity to gain further market share once initial procurements have been completed as it would require a whole Board area to agree to change with large cost implications.

Scenario 2 – Replace GPASS through procurement of an alternative general practice application

Variant 2 – NHS Board Level (variations from Variant 1)

Transitional Issues:

- An NHS Board based approach could be expected to achieve faster, discrete transitions within individual health boards with local resources able to be focused on supporting the chosen system. Supplier capacity would be likely to be a limit on speed of transition, depending on the variation in choice of supplier between Boards.

Financial, Technical and Commercial Risks:

- There still may not be a managed exit from GPASS if some Boards elected to retain the system. Consequently, the bulk of existing costs for maintenance would continue to be incurred, although the geographic focus may support some additional cost savings. However, individual NHS Boards that have fully exited GPASS would expect savings, thereby focusing GPASS costs onto the remaining Boards.
- Technical risks with this approach still arise from the need for significant system linkage to meet the needs of an integrated primary and community record, which would require suppliers' systems to be integrated with other related applications and the SCI products. However, within the context of individual Boards the focus would be on integrating a single GP system.
- Given the more focused, larger elements of business for suppliers, it could be expected that improved prices could be negotiated by NHS Boards.
- The Scottish market would be less fragmented and consequently a higher level of commercial commitment could be anticipated. The negotiation process for significant elements of business should allow firmer contractual commitments to be negotiated.
- A degree of competition would exist if more than one supplier is successful, although it would be a major decision for an NHS Board to decide to change system and supplier.

Scenario 2 – Replace GPASS through procurement of an alternative general practice application

Variant 3 – National Level (assumed single system selected, variations from Variants 1 & 2)

Key Strengths:

- Speed of implementation would be slower as agreement will need to be reached nationally. However, if it builds on the current framework and is undertaken quickly it could still prove acceptable.
- This highly controlled migration away from GPASS is likely to result in least variation in general practice systems in Scotland. Integration within NHS Boards to SCI Store, SCI Gateway etc. should be aided by largely consistent systems, as would any new wider eHealth integration requirements.
- The large Scottish market presence of the supplier should aid Scotland in being accorded a higher priority as against England as compared with Variants 1 & 2. This should aid negotiating satisfactory arrangements for suppliers to respond to new Scottish requirements resulting from either different health policy and priorities from England or alternative approaches to building an overall eHealth infrastructure. The more prolonged procurement process should ensure a secure contract in relation to these matters, including future developments and upgrades and controls on costs.
- Support expertise, and sharing of data at CHP, Board and National level for public health purposes or cross-general practice services, should be aided as compared to Variants 1 & 2.
- Minimal variation and hence training for staff moving between practices or locums within Scottish practices.
- Best economies of scale in terms of cost and expertise as compared with Variants 1 & 2.

Key Weaknesses:

- Harder to provide real engagement and opportunity for general practices to influence the choice (subject to SEF). However, Tayside and Grampian experience suggest a large consensus is achievable. A larger minority of practices can be expected to stay with their current system or select a different alternative.
- There would be minimal competitive pressure and reliance on a single supplier. However, there would still be the opportunity to benefit from innovation by a supplier with a much larger market than just Scotland and hence greater investment opportunities.

Scenario 2 – Replace GPASS through procurement of an alternative general practice application

Variant 3 – National Level (assumed single system selected, variations from Variants 1 & 2)

Transitional Issues:

- Having a single supplier may result in a longer transition period limited by supplier capacity to immediately address the whole Scottish market. However, as there would be an associated managed exit from GPASS, NHS Scotland may be able to provide additional resources to undertake implementation if GPASS was placed onto a care and maintenance basis.

Financial, Technical and Commercial Risks:

- With a managed exit from GPASS, costs would in due course be reduced and reallocated. However, adequate cover would need to be retained during the transition period. The procurement process would allow exploration of how skilled GPASS staff could play a role in the new environment. This could include consideration of the new supplier assuming a role in maintaining GPASS in parallel with rolling in new products. In consultation, some suppliers have expressed an interest in accessing the manpower, experience, and skills of the existing GPASS staff where they had a significant Scottish market to address.
- Technical risks with this approach still arise from the need for significant system linkage to meet the needs of an integrated primary and community record, which would require suppliers' systems to be integrated with other related applications and the SCI products. However, within the context of a national system the focus would be on integrating a single GP system across Scotland.
- A single market approach could be expected to result in the best economies of scale and, consequently, prices.
- A high level of commercial commitment could be anticipated given the size of the market for the selected supplier. However, there would be minimal competition going forward so the negotiation process will require firm contractual commitments to be negotiated with regard to access to future product developments and meeting new Scottish requirements.

Scenario 3 – Replace GPASS through procurement of an alternative general practice application, but with additional functionality addressing wider eHealth requirements within primary care and community settings:

Key Strengths:

- Maximum potential to achieve simplified structure of electronic records across primary and community care with greatest potential to support new ways of working as outlined in 'Delivering for Health'.
- This highly controlled migration away from GPASS is likely to result in minimal, if any, variation in general practice systems in Scotland. Integration within NHS Boards to SCI Store, SCI Gateway etc. should be aided by largely consistent systems, as would any new wider eHealth integration requirements.
- The large Scottish market presence of the supplier, the breadth of the application, and the Scottish flavour of the application, should aid Scotland in being accorded a higher priority as against England as compared with Scenarios 1 & 2. This should aid negotiating satisfactory arrangements for suppliers to respond to new Scottish requirements resulting from either different health policy and priorities from England or alternative approaches to building an overall eHealth infrastructure. The comprehensive assessment of long term requirements and more prolonged procurement process should ensure a secure contract in relation to these matters, including future developments and upgrades and controls on costs.
- Support expertise, and sharing of data at CHP, Board and National level for public health purposes or cross-general practice services, should be highly supported.
- Minimal variation and hence training for all primary care and community staff moving between posts.
- High level of economies of scale in terms of cost and expertise.

Key Weaknesses:

- Harder to provide real engagement and opportunity for general practices to influence the choice (subject to SEF). This would be a major change of strategy and approach and could be rejected by users or very considerable time could be required to gain consensus on direction.
- More complex objectives with less proven solutions resulting in much higher level of prolonged timescales, delays and risk of overall failure.
- Far higher level of change management required. Emphasis on new models of care and process change to realise benefits on an appropriate scale.
- Speed of implementation would be slow as significant work is required to determine application strategy and requirements and as agreement will need to be reached nationally. User community may find the delay unacceptable.
- High likelihood of having to provide interim improvements to GPASS in view of longer timescales requiring investment in GPASS Clinical to provide acceptable interim IT support.
- There would be minimal competitive pressure and reliance on a single supplier. However, there would still be the opportunity to benefit from innovation by a supplier with a large market in Scotland and an element of ground breaking development.

Scenario 3 – Replace GPASS through procurement of an alternative general practice application, but with additional functionality addressing wider eHealth requirements within primary care and community settings:

Transitional Issues:

- This will be a prolonged transition, estimated at approximately 18 months to complete investment appraisal and procurement phases and a subsequent implementation period which would require to be agreed, but which would probably not be less than a further 18 months, hence a 3 year transition period.
- Such a period would mean that the current solution, GPASS, would need to progress over this period. Ideally, this would be on the basis of making GPASS Clinical available to those practices that want it, once it was of proven effectiveness and reliability over the MTS. It would also need to be maintained and developed in terms of critical requirements such as the QOF.

Financial, Technical and Commercial Risks:

- A plan would be required to secure the maintenance of GPASS until completion of a full transition.
- With a managed exit from GPASS, costs would in due course be reduced and reallocated. The procurement process would allow exploration of how skilled GPASS staff could play a role in the new environment. This could include consideration of the new supplier assuming a role in maintaining GPASS in parallel with rolling in new products.
- Technical risks with this approach would have less challenge in the area of system linkage to meet the needs of an integrated primary and community record, but would retain the challenges of linking to national systems and secondary care. This would remain a key requirement to realise the overall eHealth Strategy. However, within the context of a national system the focus would be on integrating a single primary and community care system across Scotland.
- A single market approach could be expected to result in the best economies of scale and, consequently, prices.
- A high level of commercial commitment could be anticipated given the size of the market for the selected supplier. However, there would be minimal competition going forward so the negotiation process will require firm contractual commitments to be negotiated with regard to access to future product developments and meeting new Scottish requirements. Scotland also clearly runs the risk of selecting the 'wrong supplier' in the longer term following future developments in England, and future national change to a different supplier would be a major disruption.

The Way Forward – Key Conclusions

Delivering for Health

- Delivering for Health envisages integrated patient records supporting the work of groups of professionals and new models of care in terms of staff roles and care locations. The envisaged transition includes a continued shift of care from secondary to primary and community care settings, i.e. more complex care outside the hospital, as well as a greater focus on anticipatory care. This will require more aggregated patient databases, i.e. at Community Health Partnership or NHS Board level, which present a comprehensive picture of individuals and their health status.
- This suggests a shift to more integrated primary and community care records recording the interventions of all staff involved in care processes. It also suggests enterprise systems, above the level of the individual general practice, but retaining the necessary segmentation of patient groups and providing access to healthcare professionals on a 'need to know' basis.
- The increasingly important role of systems in the care process and the shift to 'paperlite' operation requires robust, easily maintainable technical architectures. This will be supported by enterprise systems, provided from a robust, hosted environment.
- Given these requirements, the Status Quo is not an option if Delivering for Health is to be effectively supported. The best support for Delivering for Health would result from pursuing and delivering Scenario 3, described below, and focused on addressing the broader requirements of primary and community care. However, the scale of challenge involved should not be underestimated.

GPASS

- GPASS has evolved from being an administrative system to supporting clinical requirements. As such, in the past it has met the needs of general practitioners. The current product does not meet current clinical requirements but GPASS Clinical, if it can be successfully delivered, will provide better support for GPs and patient care.
- Future requirements, as outlined in Delivering for Health, have moved on. Whilst the GPASS team has been developing GPASS Clinical to meet immediate practice needs, the requirement has broadened to focus on the wider primary care team and extends to data sharing between the health service and its partners, based on a framework of informed consent, supporting Community Health Partnership working. This requirement requires a system which can be centrally hosted and is "enterprise" based (so called because it has as its data base all patients in an area and is not limited to a practice).
- These requirements are far more complex than GPASS has had to address historically, and GPASS is not well placed to respond in terms of its current product architecture and the probable costs and risks associated with a major redevelopment of the system, when commercial alternatives are available. NSS is clear that if the direction of travel is to provide support for the extended primary care team, then GPASS was never designed to provide such support and on that basis NSS is content that a strategy for migration is required. However, NSS's experience on development and support of GPASS would make them well placed to contribute to such a strategy.
- The commercial supplier market has already responded to the above requirements and could be able to deliver such products well in advance of GPASS. There are examples of hosted, enterprise systems, with products well advanced in development. Additionally, they are better placed to make the necessary investment and access the required skills. Under these circumstances it makes sense for Scotland to seriously consider the available commercial products. However, there remains some uncertainty regarding outcomes in the supplier market in terms of which applications will emerge as the dominant products.
- If an alternative solution(s) is selected it will not be viable to maintain GPASS for a small, residual group of users. A planned exit from GPASS would, therefore, be required. In procuring an alternative solution, NHS Scotland should consider options for an incoming supplier to retain the knowledge, experience and skills of the current GPASS staff. This would need to be negotiated as part of the procurement process.

A Possible Scenario

- Out of the three scenarios presented in this report, Scenario 3 has the greatest potential to meet the requirements of Delivering for Health, and would represent a step change forward for Scotland as opposed to a more limited replacement of GP systems. However, it is the most complex to take forward in terms of procurement and subsequent implementation, and clearly there is further work as part of a procurement process to assure the suitability of commercial products that are currently in development.
- A national procurement provides the best opportunity to:
  - assess how far along the spectrum, from general practice (Scenario 1) to a wide primary and community care record (Scenario 3), to advance at the present time given the state of development of commercial products and acceptability to users in relation to security and confidentiality;
  - take a decision between opting for a single national supplier on the basis of a clearly superior functional and commercial offering or provide a choice between broadly comparable products (however, with a probable maximum of 2);
  - achieve the best prices.
- An overall single supplier appears to have most advantages for NHS Scotland, recognising that it is a relatively small market in comparison with the UK as a whole. However, there are risks in relation to the future status of current market suppliers, and the determination of whether to have a single supplier or possibly two suppliers can ultimately be resolved during the procurement process.
- If two systems were made available, commonality of system at NHS Board level appears a minimum requirement to achieve maximum benefits in terms of supporting Delivering for Health, although in the largest NHS Boards Community Health Partnership level could be a possibility. However, 'GP Choice' is a reality and an acceptable position will need to be negotiated with the representatives of general practitioners. They will need to perceive advantages for Scotland in a common strategy.
- If this is to be achieved various assurances will be required, in particular that:
  - general practitioners and the other community healthcare professions will be able to play a full role in determining the requirements and selecting the preferred system, i.e. any procurement must be clinically led;
  - concerns relating to patient information confidentiality will be addressed. In particular, an effective and secure role based access model will be required, with appropriate roles for GPs and patients in agreeing access, and supporting security and procedures;
  - the vital importance of maintaining data quality for general practice is recognised and GPs can be assured that practice and patient data are protected by appropriate controls.

Interim Developments

- Given the timescales for the above scenario, there will need to be interim development of GPASS. GPASS Clinical is not yet a robust solution. However, if Version 3500 can be delivered effectively over the MTS it can provide enhanced functionality on an interim basis for those practices that wish to take it. It is vital, however, that this product receives robust testing before any further attempted deployments.
- Two NHS Boards and a number of practices have expressed a commitment to move to commercial systems immediately and undoubtedly will regard an 18 month to 3 year delay as highly undesirable. It should be recognised that there is a wide spectrum of views on the need for urgent replacement of GPASS. These organisations will need to reconsider the urgency of local change in the light of the selected national direction. If local change proceeds, it should be undertaken with a view to integrating in due course to the new national arrangements and should be undertaken with a view to meeting the requirements of Delivering for Health.

Process, Timeline and Transition

Key Processes and Timing

The table below sets out a high level view of the key processes and approximate timing that could be anticipated in a programme to implement the identified scenario. It should be recognised that judged by public sector procurements and implementations this is a very challenging timetable.

Process	Timing
Agree strategy with user representatives. Publicise and gain buy-in from NHS Scotland organisations and wider user community.	Months 1 - 3
Establish governance arrangements, in particular to assure clinical participation and appropriate wider communication. Complete Initial Agreement and Business Case Process. Determine future funding arrangements.	Months 3 - 6
Complete specification and initial benefits planning to support business case and procurement. This will need clinical leadership and input from users, and recognition that these are continually developing systems, cannot be fully specified, and require arrangements for access to future developments. There should be recognition of common core requirements with other markets.	Months 3 - 6
Undertake procurement (including finalising key decisions in relation to number of suppliers). Arrangements will be required to manage the market in Scotland if more than one supplier is selected, and options to exit if a supplier fails to deliver satisfactorily.	Months 6 - 18
Detailed design, implementation and roll-out.	Months 18 - 36
Complete disinvestment from GPASS.	Month 36+

Transition

- Considerable preparatory work will be required prior to transition. In particular, Scotland will need a robust, effective access control model that is endorsed and supported by the clinical professions.
- Transition will be a major challenge, however it should be a key priority to minimise the timescales involved as this will be a period of dual costs to continue to support GPASS and fund a new system(s).
- Any new solution will be a hosted, enterprise system, at least at CHP level and possibly NHS Board or even national level. This suggests a rolling programme to address individual geographic areas in sequence as the best way forward, thereby minimising dual support within an area.
- Data transfer and conversion will be the key challenge, in particular as failures could have clinical risk and medico-legal implications. The requirement for rigorous testing and QA cannot be overestimated. A robust, standardised process will be required. In the interim, steps will be required to standardise versions, configurations and installations of GPASS.
- The retention of GPASS staff and maintenance capability will be a crucial consideration.

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