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of South Australia

Report

of the

Auditor-General

Supplementary Report

for the

year ended 30 June 2015

Tabled in the House of Assembly and ordered to be published, 5 July 2016

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Enterprise Patient Administration System: June 2016

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29 June 2016

The Hon R P Wortley MLC
President
Legislative Council
Parliament House
ADELAIDE SA 5000

The Hon M J Atkinson MP
Speaker
House of Assembly
Parliament House
ADELAIDE SA 5000

Dear President and Speaker

Report of the Auditor-General: Supplementary Report for the year ended 30 June 2015: Enterprise Patient Administration System: June 2016

Under the provisions of the *Public Finance and Audit Act 1987*, I present to each of you a copy of my Supplementary Report for the year ended 30 June 2015 'Enterprise Patient Administration System: June 2016'.

Content of the Report

Part A of the Auditor-General's Annual Report for the year ended 30 June 2015 advised various public sector information and communications technology systems would be subject to Supplementary reporting to Parliament. This report provides detailed commentary and audit observations on aspects of the review of the Enterprise Patient Administration System.

Acknowledgements

The audit team for this report was Andrew Corrigan, Tyson Hancock and Brenton Borgman.

I also express my appreciation for the cooperation and assistance provided by the staff of the Department for Health and Ageing during the course of the audit.

Yours sincerely

Andrew Richardson
Auditor-General

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1 Executive summary

1.1 Introduction

The Enterprise Patient Administration System (EPAS) is intended to be a key platform for the achievement of the Department for Health and Ageing's (SA Health) single state-wide electronic health record for each patient. It is also an important component in achieving the objectives of South Australia's Transforming Health initiative.[1]

The key drivers for SA Health to implement the EPAS solution are:

- the new Royal Adelaide Hospital's (RAH) reliance on an integrated electronic system to manage patients and their care
- the ability to meet State policy and strategic agendas
- the need to address the costs and inherent risks associated with maintaining current patient administration and billing systems – many of which have reached 'end of life' with vendor support being reduced and scheduled to be ceased in the near future.

Since our June 2015 Supplementary Report[2] commentary on EPAS, we have performed a further review of the EPAS Program (the Program). This has involved relating with both EPAS and new RAH Program representatives to confirm the current program implementation status, budget and expenditure to date, key risks and the system's impact and readiness for the new RAH.

Following delay to the opening of the new RAH, our focus shifted to include implementation of EPAS at The Queen Elizabeth Hospital (TQEH). In addition, in early 2016, we performed some operational testing at the Noarlunga Hospital site. The outcome of this testing is yet to be finalised and will be provided in a separate report.

1.2 Audit conclusion

Our review of EPAS has highlighted a number of ongoing challenges in implementing a system that not only meets the needs of hospitals, but is also implemented in a timely and cost effective manner.

Until EPAS is fully implemented at all in-scope sites, the full costs and benefits to be realised cannot be accurately determined. We remain of the opinion, however, that the Program's time frames, costs and estimation of required effort as specified in the original December 2011 business case were overly ambitious. Despite recent progress, the original time frames specified in this business case were not achieved and as a consequence many expected benefits have yet to be fully realised.

The implementation of EPAS at TQEH is a key indicator of whether EPAS will meet the functionality needs of all in-scope hospital sites. A May 2016 review by an external

[1] For more information regarding South Australia's 'Transforming Health' initiative refer to www.transforminghealth.sa.gov.au.

[2] Supplementary Report of the Auditor-General for the year ended 30 June 2014 'ICT Health systems and the Camden Park distribution centre: June 2015'.

consultant to assess implementation readiness of TQEH implementation indicated that stakeholders were cautiously confident about the full EPAS implementation and preparations were largely on track. The review stated that overall, staff were positive about EPAS and its potential to deliver long-term benefits to the hospital.

In our opinion it will take six to 12 months to adequately determine whether the implementation of EPAS at TQEH can be considered a success. The willingness and confidence of staff to use EPAS will be crucial.

Given the importance of EPAS, we will continue to monitor the outcome of the EPAS implementation at TQEH and the overall useability of the system.

1.3 SA Health response

SA Health gave a detailed response to our recommendations and overall assessment of the Program. Acknowledging the high public interest in EPAS, SA Health's response is included in full in Appendix F.

Some key aspects are that SA Health agreed with the summary status we reported. SA Health accepted many of the recommendations or noted that governance structures and approaches in place would continue or that they considered a risk was adequately mitigated and monitored. SA Health also responded with a summary of clinical benefits achieved at 'live' sites.

SA Health emphasised it has employed a professional executive team, experienced in leading large complex initiatives, that is appropriately managing and governing the Program. It advised that the number of issues being raised and resolved is not unusual for a program of this nature, and is not an indication that there are material quality issues with the software.

1.4 Key implementation risks and audit concerns

Our review highlights a number of key implementation risks and audit concerns. We acknowledge the Program's advice that some of these risks have been recognised by its leadership and governance groups with actions implemented to mitigate them.

Key implementation risks include:

- instances of deficiencies in governance communication and decision-making
- a lack of responsibility, clarity and timely agreement on EPAS functionality for initial operation at the new RAH
- certain EPAS workflows at the new RAH are still in progress
- increased input by the Program for some new RAH workflows is required
- some system development requirements are still in progress
- new system issues and defects are being raised on an ongoing basis
- billing issues and defects have been experienced and some remain

- implementation challenges at TQEH
- detailed data migration planning for some aspects of TQEH may still be required
- potential for incomplete training activities for new RAH staff
- challenges exist for new RAH storage and delivery of historical paper medical records and scanning
- problems with periphery devices to access the EPAS system.

1.5 Key internal program control risks and audit concerns

In addition to key implementation risks and audit concerns, we noted the following control risks and audit concerns related to the Program:

- the EPAS rollout approach and site budget estimates to complete the remaining in-scope sites following the new RAH remain unclear
- improvements are required to strengthen monitoring of formal benefits realisation planning, tracking and reporting
- the documented and communicated systems design methodology needs to be updated
- the registry of EPAS software escrow deposits is incomplete
- user segregation of duties could be strengthened and change control exceptions exist.

These audit findings are explained further in sections 5 and 6 of this Report. In addition, Appendix A includes a summary of the remediation progress of issues raised in the June 2015 Supplementary Report.

As noted SA Health's full response to our review recommendations is included in Appendix F.

2 EPAS implementation background and approach

2.1 Program background and drivers for development

In December 2011 Cabinet approved the business case for the implementation of the EPAS Program. The aim of EPAS was to provide certain functionality in relation to patient registration, admission, discharge and transfer, patient billing, waitlist management and patient flow and clinical management. It was also expected that EPAS would integrate and/or interoperate with a number of other SA Health systems.

The key drivers for an EPAS solution remain unchanged from 2011:

- the new RAH's reliance on an integrated electronic system to manage patients and their care
- the ability to meet State policy and strategic agendas
- the need to address the costs and inherent risks associated with maintaining current patient administration and billing systems – many of which have reached 'end of life' with vendor support being reduced and scheduled to be ceased in the near future.

The business case estimated that the total cost of the EPAS Program over a 10 year period would be was $408 million. This was based on sufficient savings benefits being realised as costs were occurred to enable the EPAS Program to become self-funding. SA Health indicated in the submission that the approved EPAS rollout would result in an overall favourable position of $11 million over the 10 years to 2020-21.

Cabinet approved the rollout of EPAS to all metropolitan hospitals, GP Plus centres, Glenside Hospital, SA Ambulance Service Inc metropolitan headquarters and two general country hospitals (Mount Gambier and Port Augusta). The original proposed implementation approach consisted of four phases, with completion scheduled for mid-2014.

At the time of this Report, the EPAS implementation has been limited to the following sites:

- Noarlunga Hospital and Noarlunga GP Plus Super Clinic (25 August 2013)
- Aldinga, Morphett Vale and Seaford GP Plus Health Care Centres (18 November 2013)
- SA Ambulance Service Inc metropolitan headquarters (20 November 2013)
- Daw House at the Repatriation General Hospital (1 December 2013)
- Port Augusta Hospital (15 December 2013)
- Repatriation General Hospital (4 April 2014).

EPAS is due to be activated at TQEH on 29 June 2016.

2.2 Stabilisation phase update

Our June 2015 Supplementary Report noted that due to a number of critical system functionality and configuration issues, SA Health had reconsidered its implementation approach. As a consequence, in late October 2014 Cabinet approved the option to commence an additional stabilisation phase, budgeted at $28 million (to be drawn from within the existing EPAS budget).

The stabilisation phase consisted of six work streams aimed at stabilising the product, making it fit for purpose for future sites, revising the training strategy, preparing for organisational change and business as usual support for activated sites. Issues to be resolved by the stabilisation phase included functionality for patient administration, billing and payments and clinical.

This phase was originally planned to be completed in December 2014. We were advised that whilst certain stabilisation activities were completed at the end of February 2015, outstanding issues at operational sites were not resolved until an additional major software upgrade (release 14.3) was released into the production environment in May 2015.

A June 2015 Cabinet submission contained brief commentary relating to the outcomes of the stabilisation phase. The submission stated that the EPAS product had achieved stabilisation and was now able to meet the requirements for activation at large metropolitan sites.

We were advised that the original scope for stabilisation included 106 critical and high impact issues. During the stabilisation phase another 36 critical and high impact issues were added. At the end of the stabilisation phase, 104 critical and high impact issues from the approved scope had been resolved.

As is common with newly implemented complex technology, we have noted that a number of new and existing defects remain outstanding. These are discussed in section 5.6. At the time of this Report, there were 103 outstanding production system defects. Five were rated by SA Health as critical, 40 high, 49 medium and nine low.

In addition, in early 2016, we performed some operational testing at the Noarlunga Hospital site. The outcome of this testing is yet to be finalised and will be separately reported.

2.3 EPAS implementation at the new RAH

Program delays and the addition of the stabilisation phase impacted on implementation progress, particularly at the existing RAH where EPAS was originally due to be implemented in mid-2014.

In March 2015, SA Health decided not to implement EPAS into the existing RAH and implement directly into the new RAH. At the time of the decision, the new RAH was scheduled to reach technical completion in January 2016. SA Health considered there was insufficient time available to deploy to both hospitals and deploying at the existing RAH was seen to provide little or no points of leverage for subsequent deployment at the new RAH.

This amended approach represented ‘implementation stage 2’ of the EPAS Program.

Implementation stage 2 consists of site specific clinical, patient administration and logistical configuration activities, integration, activation at the new RAH, business as usual support for activated sites and the commencement of planning for implementation stage 3.

In our June 2015 Supplementary Report, we discussed the decision and risks associated with implementing direct to the new RAH. We noted that time that SA Health had not completely defined the best subset of system functionality to the new RAH on initial operation, including the extent of patient administration and clinical functionality.

2.4 Implementation stage 2 change of scope to add TQEH

As noted in our October 2015 Supplementary Report,[3] in September 2015 the SA Government announced a delay to the opening of the new RAH. As a consequence, the hospital was expected to open by November 2016. This prompted a reconsideration of the Program schedule.

Several options were considered including:

1. implementing EPAS directly into the new RAH over the longer time frame

2. implementing EPAS into TQEH in full, followed by a progressive implementation of EPAS into the new RAH

3. implementing EPAS into the existing RAH, then transitioning EPAS to the new RAH

4. implementing the legacy Acute Patient Management System (APMS) into the new RAH, then transition to EPAS after services have been transitioned to the new RAH.

In December 2015 Cabinet approved option 2, which was the preferred option presented.[4] Cabinet also approved reconfiguring APMS as a contingency option for the new RAH and varying the Allscripts Health Solutions Inc (Allscripts) contract for additional support services until December 2017.

A key input into this decision was the outcome of an external review completed in December 2015.

[3] Supplementary Report of the Auditor-General for the year ended 30 June 2015 'Information and communication technology report: October 2015'.

[4] This represented 'revised implementation stage 2'.

3 EPAS implementation stage 2 status update to June 2016

At the time of our review the Program was working towards implementing the full functionality of EPAS into TQEH on 29 June 2016. Concurrently the Program was also supporting activated sites and continuing the new RAH implementation, with full functionality expected in May 2017.

3.1 EPAS improvements since our last Report

SA Health has advised us of a number of improvements to the functionality of EPAS. Our review has not specifically addressed these improvements. Some of these advised improvements will be assessed as part of our operational testing at the Noarlunga Hospital site.

The significant improvements advised include the following:

- changes to the EPAS system display, including certain clinical documents for clinicians to access and review across multiple visits
- changes to outpatient notes and letters including options for automatically printing and customisations to include relevant information, such as patient results
- update of the pharmacy catalogue and new functionality to support chemotherapy prescribing
- progression of system integration activities, including Enterprise System for Medical Imaging (ESMI) for electronic ordering and results of imaging services
- changes required for statutory compliance with Advanced Care Directives and enhancements to support Mental Health Legal Orders
- decommissioned and archived data from a number of legacy systems, including:
  - ExcelCare at Glenside Hospital, Hampstead Rehabilitation Centre, Mount Gambier Hospital, Port Augusta Hospital, TQEH, St Margaret's Hospital
  - Pracsoft at Noarlunga Hospital
  - Bowel Cancer, Projects Register, Restraints Register, Clinical Mortality and Adverse Event Register databases at the existing RAH.

From a patient safety perspective, data provided by SA Health indicates medication administration incidents at EPAS activated sites have reduced. SA Health provided the following table:[5]

SA Health site	Prior financial year to date July 2014 to March 2015	Financial year to date July 2015 to March 2016	Variance
Medication administration incidents:			
Noarlunga Hospital	44	36	-18%
Repatriation General Hospital	154	115	-25%
Port Augusta Hospital	38	20	-47%
Remainder of SA Health	4 276	4 447	4%

[5] These figures have been provided by SA Health and are unaudited.

3.2 New RAH EPAS implementation status

As noted in our June 2015 Supplementary Report, a significant amount of configuration work has been performed for the new RAH. This configuration work involves the Program configuring the base modules to provide specific information related to each site. Site specific aspects include services, locations and patient workflows.

Program status reporting indicated that a number of work activities were either completed or nearing completion. This included the training approach, site configuration against the EPAS functional model, device acquisition and also testing for some new and legacy systems interfaces. In September 2015, it was noted that 40 systems had been integrated into the new RAH environment.

Whilst the Program has continued to work on certain critical new RAH business requirements, the focus after September 2015 shifted to TQEH. In particular, the Program rescheduled its new RAH activation activities such as business change, data migration, training, organisational change, business continuity planning and device deployment.

The Program was still working with other SA Health programs and has progressed a number of system interface requirements planned for the new RAH. At the time of our review, scheduled work was progressing to finalise EPAS interfacing with a number of systems, such as:

- Food Management System and delivery
- Patient Queuing System
- Enterprise Pathology Laboratory Information System (EPLIS) for ordering and results of pathology services
- ESMI – outstanding issues include:
    - provider number field is not mandatory in EPAS, but is in ESMI, therefore an order received in ESMI with no provider number is rejected
    - auto-cancellation of orders in EPAS at discharge
- bio medical engineering, such as cardiac monitoring
- HealthTrack – integration for management of clinical and administration information to support specialists and hospital departments
- Radiation Oncology System (ARIA) – integration to notify patient admission, discharge and transfer information to support cancer service scheduling
- Quality Facilities Management – integration to notify bed status
- Pyxis – integration with this automated medication dispensing system to support medication management
- Capacity Planning System (CapPlan) – integration to support hospital capacity planning.

The Program's ability to complete certain activation activities has been (and continues to be) dependent on other SA Health stakeholder action. This includes staff availability for training and Central Adelaide Local Health Network Incorporated (CALHN) transition planning for device deployment.

We noted that in October 2015, the Program had established a series of work groups to address a number of deliverables that were falling behind schedule. The Program advised that the purpose of these work groups was to provide the Program's leadership and new RAH ICT Project Team leaders with a common understanding of the scope, deliverables, time frames, roles and responsibilities and the means to track progress.

3.3 New RAH EPAS functionality – initial operation

SA Health has determined that not all of the clinical functionality available will be used on initial operation at the new RAH. The functionality planned to be utilised includes full patient administration and partial clinical functionality.

We were advised that this approach was developed from discussions with a range of stakeholders including clinical leaders and hospital executives, and considering advice from external consultants. The key premise behind this decision was to ensure hospital staff were able to cope with a new facility and new computer system while keeping patients safe.

As part of this approach, we note that initial operations will include partial electronic medical record functionality for patient administration and clinical. Additionally historical paper records for inpatient and outpatient services will not always be available in EPAS.[6] The storage and handling of current and historical paper medical records is further discussed in section 5.11 and Appendix E of this Report.

Remaining EPAS functionality, primarily clinical, is planned to be adopted by the new RAH business units in a phased approach. At the time of this Report, some aspects of the implementation approach for subsequent clinical functionalities were yet to be fully agreed.

For further details of the functionality to be adopted at initial new RAH operations refer to Appendix B.

3.4 Risks for new RAH EPAS implementation

During implementation stage 2, several activation risks were raised in the Program's risk registers and/or board papers, including:

- lack of access to approved devices to configure and deliver EPAS
- untimely responses to requests for information
- lack of readiness, capacity and capability of the business to manage the required level of business change
- the Program's ability to manage stakeholder expectations of the EPAS solution

[6] The December 2011 business case stated that not all historical data will be migrated to the EPAS solution, however legacy sources of clinical and administrative data were expected to be available.

- the potential for additional functionality at the new RAH due to new or unknown requirements, resulting in time and resource pressures
- new RAH training and competing training priorities.

3.5 Potential impacts should the APMS contingency option require activation

SA Health advised that a decision on continuing to invest in the legacy APMS as a contingency option for initial operation at the new RAH is scheduled for August 2016. The main decision point will be the results of an assessment of the EPAS implementation at TQEH.

The Program advised that another key consideration would be the significant workarounds required for the EPLIS at the new RAH if EPAS is not implemented.

Our review of the new RAH ICT/eHealth Systems Oversight Committee minutes noted that, should APMS be activated for initial operations at the new RAH, it would be a minimum of 12 months before EPAS can then be subsequently implemented. This 12 month delay would be to reduce the extent of change impacting new RAH staff.

3.6 TQEH implementation status

It is planned that EPAS be activated at TQEH on 29 June 2016. The Program has noted that the period between July and October 2016 will be critical, with post-implementation support required at TQEH while also preparing for activation at the new RAH.

The Program has completed a detailed implementation plan for activation at TQEH. At the time of our review, the Program was completing activation activities.

Activation at TQEH provides the Program with a footprint into CALHN prior to activation at the new RAH. However, the tight timelines continue to generate challenges for the Program to implement the EPAS solution into one of the State's larger hospitals. These challenges are further discussed in sections 5.8 and 5.9 of this Report.

3.7 Future site implementation schedule post-implementation stage 2

A June 2015 Cabinet submission noted that stabilising the system and activating EPAS at the new RAH will impact on the Program's timetable. Following the implementation of stage 2, the remaining in-scope sites were estimated to be activated by late 2018. The December 2015 Cabinet submission then revised this estimate to until at least January 2019.

The Program also advised that a further submission would be presented to Cabinet before the end of August 2016 for activating EPAS at future metropolitan sites. Rollout planning beyond the new RAH is further discussed in section 6.1 of this Report.

For country sites, the December 2011 Cabinet submission approved the selective rollout of EPAS to only two general country hospitals (Mount Gambier and Port Augusta). Any extension of the EPAS rollout will require a new Cabinet submission and funding approval.

4 Summary of the Program budget and a status update

Program delays, the length of time required to implement EPAS at the new RAH and the time required for the remaining sites have resulted in increased program costs and reduced estimated benefits from the original Cabinet approved budget.

4.1 Updated program costs

The June 2015 Cabinet submission approved the implementation of EPAS at the new RAH. The estimated cost for implementation stage 2 was $89.3 million. This included all program costs for the stage period (January 2015 to August 2016), such as business as usual support[7] and planning for implementation of EPAS into future sites.

The December 2015 Cabinet submission approved a change in scope to implementation stage 2. This included:

- additional expenditure authority of $32 million to implement EPAS into TQEH, bringing the total stage 2 costs to $121.3 million
- additional expenditure authority of $2.8 million to reconfigure the legacy APMS system as a new RAH implementation contingency[8]
- further variation to extend vendor implementation support services to December 2017. The total increases to Allscripts' implementation support services were $10.5 million. Any implementation support services required beyond December 2017 were expected to add additional program cost pressures.

The December 2015 Cabinet submission estimated that the Program would have a financial shortfall of $29 million over the 10 year total cost of ownership period (ending 2020-21).[9]

A summary of the current EPAS Program budget over the 10 year total cost of ownership period as of 30 April 2016 is outlined in the following table.[10]

	Original approved budget (December 2011) $'000	Revised approved budget (2011-12 mid-year budget review) $'000	Expenditure to date (April 2016) $'000	Total planned expenditure $'000	Remaining budget $'000
Capital and operating expenditure	363 100	372 292	205 056	448 715	(76 423)
Contingency	44 800	49 162	1 933	1 933	47 229
Total budget	407 900	421 454	206 989	450 648	(29 194)

[7] Business as usual includes operating and support costs (for over 5000 existing users), Allscripts licences, vendor software maintenance, hardware and operating system and middleware licences.

[8] This request for additional expenditure authority is outside the EPAS Program budget and was allocated to the new RAH ICT Program budget.

[9] A March 2015 briefing to the Minister in March 2015 covered the options for rolling EPAS out to the new RAH and foreshadowed that the total cost of ownership of EPAS could reach $460-$465 million. SA Health subsequently revised its estimates and the December 2015 Cabinet submission reflected that the shortfall was expected to be $29 million over the 10 year period.

[10] The expenditure to date figure was taken from the April 2016 EPAS Program Board Financial Report, and has not been audited.

Note:

- The budget increase from $408 million to $421 million in the 2011-12 mid-year budget review was attributed by SA Health to be as a result of an accounting error in which inflationary indexation had been omitted from the original $408 million budget.

- The $421 million budget for the EPAS Program covers a 10 year total cost of ownership to 2020-21 and includes the operating costs for this period.

In reviewing the June and December 2015 Cabinet submissions and discussions with the Program we noted the following:

- SA Health advised Cabinet in June 2015 of expected additional expenditure required to complete the Program, however the submission did not seek approval for this additional funding. A Cabinet Office comment included with this submission recommended that Cabinet be updated on the costs and benefits of the whole EPAS project and that approval should be sought for the increase in total project costs. The Cabinet Office recommended that this should occur by the end of 2015. We note that this did not occur.

- In the December 2015 Cabinet submission, the Department of Treasury and Finance included costing comments. These comments stated that it did not agree with the budget impact identified in the submission as it excluded the estimated cost to complete the rollout of EPAS to the remaining sites.[11]

- The budget presented in the December 2015 Cabinet submission was prepared based on detailed resource planning that was well advanced but not yet complete. The budget was based on estimates of full-time equivalent (FTE) numbers and average cost per FTE. In response to this observation, the Program's Finance Team advised that previous detailed resource planning had resulted in the over-estimation of resourcing effort required.

In following up the above matters we were advised by SA Health that an additional Cabinet submission would be presented before the end of March 2017. This submission would seek approval to activate the EPAS solution at future metropolitan sites.

4.2 Updated benefits realisation

The December 2011 Cabinet approved EPAS budget was based on the anticipated realisation of $435.6 million of cost benefits and offsets over a 10 year period. This was expected to deliver a net financial benefit of $14.1 million against the total program cost of $421.5 million from January 2012 to January 2021.

[11] SA Health advised that the purpose of the December 2015 Cabinet submission was to seek approval for the Program's revised implementation stage 2, including activation at TQEH and the new RAH. This submission did not seek approval for the activation of EPAS at all remaining sites.

In our June 2015 Supplementary Report we noted reductions to the expected realisation of benefits. This was primarily attributed to program delays, impacts of scope, non-decommission of certain legacy systems and parameter changes (savings from medical record staff were previously overstated).

The December 2015 Cabinet submission estimated a deterioration of $127.9 million of the total costs and offsets (inclusive of the remaining sites). SA Health advised that $30.5 million of cost associated with unrealisable benefits has been absorbed and managed from within its existing total Health budget.

In January 2016, the Program conducted a further review of the status and likely outcomes of EPAS benefits and offsets realisation. This review highlighted further expected significant deterioration in benefits and offsets to be realised, with $152.4 million of the original benefits not expected to be achieved.

The following table describes the types of original anticipated cost benefits and offsets (over the 10 year period) expected from the implementation of EPAS against the new figures estimated in January 2016.

Type of offset/benefit	Description	Original expected benefits $'000	Updated expected benefits (January 2016) $'000
Capital	Reflects the reallocation of capital funding already set aside in existing Health budgets	191 254	191 254
OACIS	Reflects the reduction in staffing resources required to support OACIS	14 611	17 906
eHealth Systems	Reflects the reduced resourcing required in eHealth Systems and the establishment of a team to support EPAS	72 562	41 367
Local Health Networks (LHNs)	Reflects the reduced resourcing required in LHNs and the establishment of a team to support EPAS	60 650	10 424
Decommissioning credits	Reflects the decommissioning of existing legacy system no longer required	96 554	22 230
Benefit/Offset total		435 631	283 181

We were advised that the benefits realised to date mostly relate to certain eHealth Systems staff offsets (staff transfers) and decommissioning credits through reduction in certain legacy systems at some EPAS active sites.

SA Health advised that in many cases, planned benefits have been realised but have been counted elsewhere and acquitted against broader cost pressures in LHN budgets. Some benefit savings promised in the December 2011 business case have long since been reflected through a reduction in SA Health's current and future overall operating budgets as allocated by Government.

A summary of the net impact of the expected benefits and offsets over a 10 year period is provided in the following table.

	Approved budget $'000	Updated estimates $'000
Expenditure	-372.3	-448.7
Contingencies	-49.2	-1.9
Sub-total costs	-421.5	-450.6
Offsets/Benefits	435.6	336.8
Net impact (December 2015 Cabinet submission)	14.1	-113.8
January 2016 further revised benefits and offsets deterioration	0	-53.6
Revised net impact	14.1	-167.4

Note:

As previously mentioned, SA Health advised that $30.5 million of cost associated with unrealisable benefits has been absorbed and managed from within its existing budget.

5 Key implementation stage 2 risks and audit concerns

5.1 Instances of deficiencies in governance communication and decision-making

SA Health's governance groups have raised certain deficiencies or areas for improvement in their governance communication and decision-making.

Notable examples were:

- inefficiencies in communication and decision-making, potentially due to the large number of governance groups and approval pathways
- a lack of discipline in adherence to decisions already approved through formal governance forums
- insufficient detail around the potential consequences and risks relating to decisions
- business change elements were disconnected across business units, creating challenges.

During our review, we noted specific examples where these governance communication and decision-making deficiencies have contributed to issues impacting the implementation of stage 2 (examples are further discussed in sections 5.2 to 5.4 of this Report). SA Health advised that the changing landscape regarding the new RAH construction delays has been a contributing factor to these challenges.

The Program noted it has implemented a number of controls and treatments to help mitigate this risk, including:

- establishing the new RAH ICT/eHealth Systems Oversight Committee to provide a forum for escalating issues arising between SA Health programs and to facilitate a resolution
- distributing a fortnightly dependency report to Program Directors
- discussing program dependencies at the weekly EPAS leadership program group
- meeting regularly with other projects/programs
- the Program attending several other key strategic and operational meetings
- the engagement of external consultants to review aspects of the Program's progress.

Risk

Deficiencies in governance communication and decision-making increase the risk of program delays, incorrect decisions being made and inefficiencies occurring.

Recommendation

SA Health should continue with mitigating controls and treatments for a robust governance structure and approach.

SA Health response

SA Health accepts the recommendation. The governance structures and approach is already in place will be continued, with associated management of mitigating controls and treatments.

5.2 Lack of responsibility, clarity and timely agreement on EPAS functionality for initial operation at the new RAH

Our June 2015 Supplementary Report noted that a decision was originally expected to be made in early 2015 on what EPAS functionality will be available and ready to be implemented at the new RAH. This decision was to include assessing the EPAS solution deployment options and assessing a preferred contingency approach.

CALHN approved the proposed approach for a combination of EPAS functionality and paper records planned for initial operations at the new RAH in June 2015.

However, in October 2015 a Program status report advised that the final functional scope and hybrid record was yet to be finalised. This was due to various concerns raised within SA Health, including:

- confusion and lack of clarity over the functionality
- concerns regarding the decision-making process
- the broadness of the consultation process
- the extent of change involved with the implementation of EPAS
- clinical department heads' concern about the hybrid record
- ability to adapt to major concurrent changes
- conflicting messages received for EPAS initial operations at the new RAH.

During this period, the program was also drawn into debate with clinicians, leading to scope creep requests that had to be dealt with through the appropriate governance mechanisms.

As a consequence, CALHN reassessed and reapproved the EPAS functional scope for initial operation at the new RAH in mid-December 2015.

We noted the Program's functional model of EPAS for initial operations at the new RAH, updated in April 2016, included functionalities pending CALHN decisions. These included certain patient flows, such as management of patient transport, bed turnover, generation of patient flow reports and management of allergies and intolerances.

We consider that the time frames to define the agreed functionality planned for initial operation at the new RAH were lengthy. This was also acknowledged in an external consultant's review finalised in November 2015.

Risk

There is a potential risk that CALHN will not define the EPAS business requirements (functionality) to be adopted for initial operation at the new RAH. This risk will be heightened closer to the initial operation of the new RAH.

Recommendation

CALHN should define the EPAS business requirements (functionality) to be adopted for initial operation at the new RAH.

SA Health response

SA Health accepts the recommendation. SA Health will ensure that CALHN complete the definition of its requirements in a timeframe that enables the EPAS Program to deliver its associated functionality for initial operation at the new RAH.

5.3 Certain EPAS workflows at the new RAH are still in progress

The new RAH workflows, which include initial operations and future state, were originally planned to be completed by February 2015. With the delay of the new RAH and the addition of TQEH as the next implementation site, the development of some of these workflows was deferred.

The Program has continued to develop site specific configuration requirements, address certain system functionality issues and has commenced training activities. A large number of new RAH workflows have the potential to involve EPAS. The full impacts of these outstanding workflows are unknown. When workflows are completed, the effects on EPAS will need to be reconciled.

The following table summarises the February 2016 workflow development status.

Workflow type	Total workflows by type	Not yet finalised	Not yet started (subset of not yet finalised)
New RAH workflows	172	129	93
Configuration data sheet	162	162	3
Patient Journey Management	17	1	0
Current existing RAH workflows	205	117	9
Total workflows	556	409	105

Risk

Considerable reconciliation work may be required between the EPAS solution and CALHN developed workflows.

Recommendation

The Program, CALHN and new RAH ICT Program should develop an approach to finalise all new RAH workflows involving EPAS in a timely manner.

SA Health should revisit its resourcing schedule to ensure that sufficient resources are allocated to complete these activities. The relevant governance committees should be provided with frequent updates by the EPAS Program, CALHN and the new RAH ICT Program.

SA Health response

- SA Health has an established approach to finalise new RAH workflows including those involving EPAS. The EPAS Program team will continue to engage with CALHN at the new RAH workflow workshops, providing subject matter expertise, and the EPAS Program team provides appropriate resources to assist the mapping workshop and will continue to do so.
- The relevant EPAS documentation has been supplied to CALHN and new RAH ICT Program accordingly to assist in the new RAH workflows process.
- Workflow development progress and status are regularly monitored by governance forums in both new RAH and EPAS Programs. SA Health will continue reporting and monitoring as recommended, including the provision of sufficient resources.

5.4 Increased input by the Program for some new RAH workflows is required

The majority of workflows were initially developed between the new RAH ICT Program and CALHN, with minimal overall input from the Program. Exceptions have been workflows for the Emergency Department and the Intensive Care Unit, where the Program has had increased involvement.

At the time of our review, the Program was concerned that the workflows were developed based on a number of assumptions, with unrealistic expectations of the system's capabilities and functionality. The Program advised key risk areas included performing outpatient functions and the administration of the new way of patient queuing.

An outpatient function example included the assumption that EPAS would receive electronic referrals from internal or external sources. Discussions with the Program indicated that this functionality was not in place and was not planned.

Program updates continue to note frequent discussions, collaboration and consultation between other SA Health programs, projects and LHNs, including the new RAH Program and CALHN. Despite these controls the majority of workflows appear to have been developed without appropriate consultation between the Program and key stakeholders.

Since the completion of our review, we were advised that the Program has increased engagement with CALHN on the development of these new RAH workflows.

Risk

Without input and direction provided by the Program, CALHN business workflows may not align with EPAS capabilities and functionality.

Recommendation

The Program should continue its involvement in the development of the workflows planned for the new RAH.

SA Health response

- SA Health acknowledges the risk and believes it is adequately mitigated and monitored.
- The recommendation is accepted. SA Health will continue active involvement of the EPAS Program in the development of new RAH workflows that relate to the system.

5.5 Some system development requirements are still in progress

SA Health has adopted an incremental design approach (discussed in section 6.3). As such, there are a number of system development requirements that remain in progress and are scheduled for future delivery. This includes development required as a result of system defects, further enhancements and building outstanding functionality. For a current listing of these development requirements refer to Appendix C (in progress system development requirements).

Despite these notable development requirements still being progressed, the current EPAS functional model indicates that a number of functionalities planned for implementation into a major hospital have been addressed.

The Program has also indicated that it has addressed a number of out-of-scope requests to meet hospital staff requirements.

We note that the December 2011 business case did not provide a breakdown of costs estimates to implement the various functionalities. We consider it important for the Program to review the functionality being delivered against the scope specified in the original business case. This has a direct relationship with the Program's benefits and offsets, which were reviewed in January 2016. These benefits and offsets were expected to be realised as a result of implementing the original intended functional scope.

Our preliminary analysis highlights notable functional components not yet available for use by the current EPAS build that were originally in scope in the December 2011 business case (refer to Appendix D).

Risk

System development and enhancement activities not being finalised can adversely impact staff workflows, through increased time and effort involved in performing additional workarounds.

There may not be a direct relationship between the functionality being delivered and the benefits and offsets that were reviewed in January 2016.

Recommendation

The Program should discuss and formally agree on proposed system developments and required workarounds with current activated sites, CALHN and Allscripts. This includes the full workflow impact when proposing new system changes.

The Program should continue to utilise the clinical working group to assess system developments, defects and system changes. It should also consider the use of scenarios analysis to increase the likelihood of identifying all potential impacts on current and future workflows.

The Program should review the functionality being delivered against the scope specified in the December 2011 business case.

SA Health response

- The EPAS Program will continue, as it always has, assessment of the impact and to work closely with Allscripts on proposed system developments and new workflows with current activated sites.
- SA Health will continue, as it always has, to utilise the EPAS Advisory Council as well as clinical working groups and relevant state-wide groups such as the South Australian Medicines Advisory Committee (SAMAC) to assess system developments, defects and system changes.
- SA Health will review the functionality being delivered against the scope specified in the original business case.

5.6 New system issues and defects are being raised on an ongoing basis

New ICT system programs, especially of this magnitude, will generally experience issues, enhancement requests and defects being raised throughout their lifecycle.

In this instance, the Program has defined a ‘defect’ to describe events within the EPAS system that include, but are not limited to:

- a limitation or shortcoming in functionality
- non-compliance with updated or revised customer requirements or specifications
- any process that could lead to creating an output that does not meet customer requirements
- an error in the system usually due to a combination of changes being brought together.

In our review we were advised that a number of system defects were resolved as part of the May 2015 upgrade (release 14.3). In addition, a number of defects have since been resolved in the second half of 2015, particularly relating to billing and outpatient waitlists.

Despite this progress there are a number of outstanding patient administration related issues, defects and enhancements rated as critical by the Program. These include registration screens and function, discharge screens and function and patient management. In addition, similar to most new large complex systems, the Program has continued to experience new issues and defects.

The following table summarises the monthly production defects from October 2015 to April 2016. This table highlights that although defects are being continually resolved, new defects across the system (including patient administration) are also raised on an ongoing basis.

Month	Defects received	Defects resolved	Defects in progress
Opening balance at 31 October 2015			136
November 2015	30	46	120
December 2015	27	22	125
January 2016	25	17	133
February 2016	27	67	93
March 2016	24	22	95
April 2016	37	11	121

Section 2.2 contains summary details of current EPAS defects and the associated severity ratings.

To help assess the impact of some known issues and defects on LHN operations, we conducted operational testing during 2015-16 at the Noarlunga Hospital. The outcomes of this testing are yet to be finalised and will be reported separately.

Risk

Outstanding issues and defects have the ability to impact implementation stage 2 and potentially result in manual workarounds.

Recommendation

Refer to the recommendations made in section 5.5.

SA Health response

SA Health will continue with its well established practice to monitor and resolve system issues and defects and these will be scheduled according to their priority. There is an effective process in place that ensures items are assessed and prioritised appropriately. The EPAS Program continues to enhance the system as change requests are approved by the EPAS Program Board. The Program closely monitors defects and prioritises the work to resolve them according to severity.

5.7 Billing issues and defects have been experienced and some remain

The Program has been progressively resolving a number of billing defects and operational issues during 2015 and early 2016.

The continual work on billing component defects has delayed implementation of other functionality improvements, such as the trial of a new outpatient waitlist and a speciality scanning functionality at the Repatriation General Hospital (RGH).

Additional details of some key billing issues are documented in sections 5.7.1 to 5.7.3.

Risk

There is the potential for inaccurate billing charges to patients or lost revenue to SA Health.

Some manual workarounds or reconciliations may be required to validate and reconcile billing charges.

Recommendation

Refer to the recommendations made in section 5.5.

SA Health response

SA Health will continue to monitor and resolve system issues and defects and these will be scheduled according to their priority.

5.7.1 EPAS is currently not directly integrated to send and receive messages with Medicare

The Program is working with Allscripts to identity a solution to directly integrate with Medicare systems and processes and noted that considerable development work and testing will be required to resolve this issue. Currently reliance is placed on other gateways to transmit and receive claims.

LHN Hospital Revenue Services are still faced with some challenges, notably:

- manual workaround to process Medicare batch claims that were not correctly sent
- manual workaround to identify Medicare rejections still exist, but to a lesser extent.

The current billing workflows, including the above workarounds, will need to be deployed to the new RAH as Allscripts have advised that a solution will not be available until 2017-18. In the interim, the Program has produced additional reporting on Medicare claims and adjustments, including Medicare rejections.

The Program has noted that direct connectivity with Medicare was not in the Program scope or the Allscripts solution. However, ‘patient billing’ is included in the original functional scope outlined in the December 2011 business case. We consider this is an example of the original business case not clearly identifying the full business requirements, given the large role Medicare plays in the current Australian healthcare environment.

5.7.2 Charges not automatically being generated for outpatients including compensable (Medicare and Department of Veteran's Affairs) and non-Medicare

Our 2014-15 Annual Report to Parliament (Health sector activities – Southern Adelaide Local Health Network Incorporated) identified issues with outpatient billing charges. During this review, RGH Hospital Revenue Services advised that EPAS was still not automatically generating any charges for compensable (Medicare and Department of Veteran's Affairs) and non-Medicare patient visits. This is despite the Program's advice that outpatient billing is operating effectively, with recent changes made to streamline the checkout process.

As a consequence, RGH Hospital Revenue Services were still manually reviewing the Billing Discharge Report to identify any billable outpatients. If identifiable, a manual process was required to trigger EPAS to generate a charge for each individual outpatient. We consider that the extent of this issue has the potential to increase significantly at a large hospital site. This is because an SA Health Internal Audit Report on Outpatient Reform in February 2016 indicated the volume of CALHN outpatient activity during 2014-15 was over 600 000 patient admissions.

5.7.3 Manual checking to identify instances of inaccurate charges billed to patients

Our 2014-15 Annual Report to Parliament (Health sector activities – Southern Adelaide Local Health Network Incorporated) also identified that some invoices automatically generated by EPAS included incorrect patient charges. This included duplicated charges, missing charges and the generation of bed charges following discharge.

The Program advised the Southern Adelaide Local Health Network Incorporated (SALHN) that these issues would be addressed as part of the May 2015 upgrade (release 14.3). At the time of our review, SALHN advised that this upgrade had significantly reduced the amount of errors occurring, however periodically errors have occurred.

We were advised that there is currently no automatic notification or error reporting available to identity patient invoice charge discrepancies. As a precaution, RGH Hospital Revenue Services are still manually checking each invoice processed, which is a time consuming process. The Program has acknowledged other billing issues related to this problem and is working with Allscripts on a suitable solution. These issues include:

- inability to calculate inpatient long stay billing charges until post-discharge which is dependent on manual workarounds
- patient leave of absence not excluded from accommodation charges.

The Program advised that recent changes were made to provide LHNs with additional controls to over inpatient long stay trigger dates. It was also implementing a number of validation changes to further reduce occurrences of incorrect patient charges.

5.8 Implementation challenges at TQEH

EPAS functionality for TQEH will include aspects such as patient administration, electronic medical records, billing, clinical functionality already available at live sites and the addition of some other site-specific clinical functionalities.

We were advised by SA Health that there was sufficient time for full implementation at TQEH and no reason for restricting the functionality to a partial implementation. In addition, this implementation approach provided an opportunity to confirm the readiness of the total solution before implementation at the new RAH. This approach would therefore assist the Program to build confidence amongst clinicians, who would be working across both hospitals.

A review by an external consultant to assess implementation readiness was conducted in May 2016. This involved a series of stakeholder interviews and high level documentation reviews. The external consultant's report indicated that stakeholders were cautiously confident about the full EPAS implementation and preparations were largely on track. The review noted no issues that would prevent 'go-live' proceeding. It stated that overall, staff are positive about EPAS and its potential to deliver long-term benefits to the hospital.

The May 2016 review did state that significant areas of risk still required addressing. This included improving the clarity of the 'go-live' date and ramp down, accountability for local (TQEH) issues, training and support for medical staff and the extent of work still required before go-live in Outpatients.

Our review noted that a number of tasks and activities were planned for completion quite close to the scheduled activation in June 2016. These activities relate to training, activation and deployment, site configuration, user data collection and configuration (eg user preferences and screen customisation), device configuration and onsite testing.

We also noted that while progressing the implementation at TQEH, the Program is also working on critical path activities for the new RAH and providing business as usual support activities for existing sites. Following activation at TQEH, the Program will be required to provide post-activation support for TQEH, while conducting State operational commissioning testing and continuing activation activities for the new RAH.

The Program Board is receiving updates on a weekly basis leading up to activation at TQEH.

Risk

There is a risk that the Program will not complete all in-scope activities within the required time frames.

Implementation delays at TQEH may impact user confidence and the readiness of EPAS for the new RAH, and require activation of the APMS contingency.

Recommendation

The Program Board continue to monitor progress and recommend any necessary resourcing adjustments. This is to ensure scheduled implementation is achieved, there is appropriate levels of post-activation support are provided to TQEH staff and there is no impact on the scheduled outstanding new RAH activation activities. This includes data migration, site and device configuration, business change and training.

SA Health response

- This recommendation reflects SA Health's existing and long standing practice ie The EPAS Program Board and eHealth Steering Committee will continue to monitor TQEH and new RAH implementation progress and make any necessary resourcing adjustments to ensure appropriate post-activation support while continuing with scheduling new RAH activities.
- With less than two weeks until TQEH activation at the time of writing, SA Health is on track to activate the site as scheduled and is confident the Program is appropriately resourced.

5.9 Detailed data migration planning for some aspects of TQEH may still be required

We were advised that the Program maintains an overall data migration plan. This plan has been used for previous EPAS site activations. Modifications are made to the data migration plan to take into consideration the lessons learned from other activation sites.

For the EPAS activation at TQEH, the Program maintains some documented progress for the migration of data from the legacy patient administration system (Homer). We note that the majority of the data migration requirements relate to this system. SA Health advised that there are three testing cycles planned for the Homer data migration schedule.

During these cycles, the Program plans to:

- verify the quality and accuracy of data
- produce reports and error logs to reconcile legacy data with migrated data
- conduct quality assurance to ensure integrity is maintained.

At the time of our review, the Program had not yet conducted any trial conversions with formal test cases to verify the accuracy and completeness of the data produced in EPAS. In addition, from the documentation provided, we consider there was insufficient evidence of the Program's overall data migration requirements for all other existing legacy systems used at TQEH (ie other than Homer).

One example was allergies and intolerance records stored in the existing Emergency Department system (HASS-ED). This information was not originally planned to be migrated from HASS-ED for TQEH, as it was not migrated in previous site activations. Subsequent to our inquiry and a further review of the data by SA Health, we were advised that these records will now be migrated. The extent of allergies and intolerance records to be migrated has yet to be finalised (eg historical records or only current patients).

At the time of our review, SA Health was unaware of any further deviations from the currently identified data to be migrated, however we consider it important that this is confirmed and understood with CALHN.

Risk

Failure to identify and document all data migration requirements may lead to EPAS not containing all of the data required.

Recommendation

Through consultation with CALHN, the Program should ensure that all legacy system data requirements are completely understood at TQEH and the new RAH.

SA Health response

The EPAS Program team has, in consultation with CALHN, documented all legacy system data requirements for TQEH and new RAH to be decommissioned and archived. Access to these legacy systems will be available in the legacy system archive application.

5.10 Potential for incomplete training activities for new RAH staff

In our June 2015 Supplementary Report we noted that the stabilisation phase included an updated training approach.

We note that the Program has made some progress in training activities for new RAH staff, with the onsite manager and implementation lead face-to-face training completed in early November 2015.

It is important that users receive training close to the time they commence system use. Training too early increases the risk of users forgetting key system processes. Commencing training too late risks users making errors or losing confidence in the system.

SA Health advised that it currently has a training plan, but until the new RAH opening date is defined the applicable training dates for new RAH staff cannot be scheduled. This includes establishing when staff are available and plan to complete their EPAS training. This current uncertainty may impact the Program's ability to appropriately prepare staff for initial operation.

Risk

If staff are not available for their allocated training time, it may create a backlog of outstanding staff training activity immediately prior to initial operation of the new RAH.

There may be insufficient time for employees and clinicians to be suitably competent in using EPAS and the associated new and/or changed workflows.

Recommendation

Through the existing groups and committees, the Program should determine CALHN's staff availability and plans to complete their EPAS training activities.

SA Health should continue to identify and address any perceived training gaps so the Program can appropriately plan and resource upcoming training activities.

SA Health response

- Training hospital staff to use a large complex system such as EPAS must occur as close as practicable to when staff will use the system in operation else the training investment is wasted and must be redone as knowledge fades without use.

- The availability of staff to complete training activities is a risk that the EPAS Program manages very effectively. This risk exists for all EPAS deployments and has been managed for all previous locations that have activated.

- The CALHN business Directorates are specialist clinical divisions such as medical, surgical, allied health and critical care. Training approaches have been developed for each specialist clinical division related to the functional scope for each Directorate.

- The EPAS Program will continue, as has been the practice, to work closely with CALHN and the new RAH training team to determine staff availability and plans to complete their EPAS training activities.

- SA Health will continue to monitor and address any perceived training gaps so the EPAS Program can appropriately plan and resource for upcoming training activities.

5.11 Challenges for new RAH storage and delivery of historical paper medical records and scanning

During our review we noted some uncertainty in the agreed solutions regarding the storage, delivery and scanning options for historical paper medical records at the new RAH. We have clarified aspects relating to the model planned for initial operations at the new RAH and SA Health's rationale behind the selection of preferred options. Details are provided in Appendix E.

It is important to note that the original December 2011 business case did not intend to completely eliminate paper medical records. In addition, as noted in previous Reports, the new RAH was not in the original EPAS program's site implementation scope. Therefore, it is difficult for the Program to meet certain EPAS benefits at the new RAH in the short to medium term. This includes reducing delays and costs involved in retrieving paper medical records from other sites.

We also note that an external consultant engaged by SA Health indicated that most hospitals in Australia have some form of hybrid record, consisting of a combination of paper, scanned records and data entered directly into systems. In addition, the new RAH Program's benchmarking identified that the existing RAH currently provides more volumes of a patient's record than other Australian hospitals who mostly supply a single volume.[12]

SA Health may be able to reduce its reliance on historical paper medical records once EPAS is established for an extended period of time and when increased clinical assurance is provided that a sufficient amount of patient information is contained within the system.

[12] SA Health advised that a single paper medical record volume is approximately 3 cm thick and includes treatment records over a period of time.

At the time of our review, we noted the following remaining challenges:

- clinical consultation has not been finalised regarding the timing and volume extent of historical paper medical records to be delivered on request to the new RAH
- a procurement process has not been initiated to accommodate additional storage and delivery requirements, including:
    - archiving of scanned paper medical records generated from new RAH operations
    - archiving of files at the existing RAH Medical Records Department (on initial operation at the new RAH and the full decommissioning of the existing RAH)
    - multiple daily courier delivery services between the existing RAH Medical Records Department and the new RAH
- consultation regarding continued use of the existing RAH Medical Records Department
    - the existing RAH Medical Records Department currently operates seven days a week between 8 am to 6 pm. After hours requests require Emergency Department clerks to request security access to the Medical Records Department. This presents the new RAH Program with uncertainties around both staff being onsite overnight and the supply of paper medical records
- decisions are pending on the migration of allergies and intolerances data, including the extent of the information (eg historical records or only current patients) from the existing Emergency Department system (HASS-ED). In addition, it is yet to be finalised where allergies and intolerance details will be recorded on initial new RAH operations (eg EPAS and/or the physical medical record).

Risk

Medical staff may not have access to the patient's full clinical history in a timely manner.

SA Health operational costs could be under extra strain for an extended period of time to address additional procurement of record storage and delivery services.

New RAH emergency staff may not be able to confirm allergies and intolerances where a patient has previously visited the existing RAH. This risk is further increased should there be any delivery delays of historical patient paper records.

Entry of patient allergies and intolerances into EPAS, while still referencing paper medical records, has the potential to result in conflicting information and medical staff questioning the single source of truth.

Recommendation

The new RAH Program should continue conducting the clinical consultation required to progress agreed workflows relating to the storage and delivery of historical medical records for initial operation at the new RAH.

The new RAH Program should ensure priority is also placed on confirming the storage and delivery services required for initial operation at the new RAH, including the use of the existing RAH Medical Records Department.

The Program should actively consult with the new RAH Program and CALHN regarding the risk of conflicting information between historical paper records and information stored in EPAS, such as the migration of allergies and intolerances.

SA Health response

- SA Health agrees with the recommendations. The recommendations reflect current focus and action within both the new RAH and EPAS Programs. SA Health will continue to progress these actions and examples are provided below for information.

- A draft supply and retrieval process map for the supply of the medical record to the new RAH has been developed to support consultation with clinical groups. Consultation with key leadership positions within the clinical groups has commenced and has included leadership positions and clinicians from the Emergency Department, Outpatients, Allied Health, Renal, Surgery, Cancer, Critical Care, Imaging, and Mental Health. Further consultation is planned for Medical and Research which is planned for completion in June 2016.

- Specific adaptions to the supply and delivery model of the medical records have been made in order to meet the requirements of the different clinical areas.

- Broader consultation with all clinicians will be supported through the presentation of the consultation paper to the CALHN Industrial Liaison Forum.

- The retention of the Medical Records Department on the current site is planned for nine months post-move to the new hospital.

5.12 Problems with periphery devices to access EPAS

The December 2011 business case noted certain clinical adoption risks, including the potential for insufficient computers/monitors/tablets to be available for clinicians to access the system. The proposed mitigating strategy included installing more than 3700 bedside monitors, designed to provide patient services at the bedside, into the in-scope hospital sites. This risk was highlighted in our June 2015 Supplementary Report, which raised problems with periphery devices accessing the EPAS system and discussed the use of different types of devices.

Although the Program has subsequently advised that the device strategy has been finalised for the new RAH, at the time of our review SA Health was still addressing periphery device challenges. This included the procurement of alternative bedside monitor solutions to resolve calibration issues (software may not respond as expected to a mouse click) and excessive movement (bouncing) of the keyboard while typing.

Risk

There may be insufficient time for the bedside monitor solution to be configured, tested and deployed before initial operation at the new RAH. In addition, an alternate solution to the bedside monitor arms could introduce additional usability issues.

Recommendation

The new RAH Program should ensure the timely procurement and delivery of alternate bedside monitor solutions and allocate sufficient resources to configure, test (including usability) and deploy the new solution at the new RAH.

SA Health response

A contract has been executed for the procurement of a new bedside monitor solution for the new RAH. The delivery of the bedside monitor solution, along with the configuring, testing and deployment of the solution at the new RAH is on track and being managed by the new RAH ICT Program.

6 Key internal program control risks and audit concerns

6.1 EPAS rollout approach and site budget estimates to complete the remaining in-scope sites following the new RAH remain unclear

The Program is currently operating on a staged implementation basis, at a site level. Approval for each site implementation stage and release of required funding requires Cabinet approval.

The Program maintains a budget analysis of a number of activities and associated costs, including vendor, ICT infrastructure, activation, operations, communications and training.

In reviewing this budget, we noted that the Program has only developed a breakdown of estimated costs at a site level based on high level parameters, including average FTE and time allocated per site. This minimal analysis at the site level is largely due to the Program not completing a formal detailed schedule of future in-scope sites following implementation at the new RAH.

We acknowledge the Program's advice that current staged estimates are based on historical actual resource figures, however the Program is yet to implement EPAS at a major hospital. The current estimates may therefore significantly change following completion of the implementation at TQEH and the new RAH, especially the length of the implementation period. We believe that the implementation effort required for each site will differ in complexity due to the nature of the LHN workflows, various legacy systems and specific site configuration requirements. It is therefore difficult to estimate the extent of effort required to complete all program activities purely based on average actual historic resource figures.

We consider that it is important for a program of this size and nature to maintain cost estimates of the general activities required to implement the EPAS solution into each remaining site. For example, site configuration, device configuration and deployment, data migration, activation activities such as organisational change and training, integration and business continuity planning. This includes tracking these cost estimates within the original approved budget.

Risk

Without a formal budget allocation for all implementation activities on a site by site basis, the Program is unable to sufficiently support estimated total costs to complete all in-scope program activities within the allocated budget.

Recommendation

The Program should ensure that it completes the planned high level rollout schedule in a timely manner. At a minimum, the Program should allocate cost estimates for the general activities required to implement the EPAS solution into each remaining site and track these cost estimates within the original approved budget.

The Program should communicate its planned rollout activities with the LHNs to allow for timely budget planning and resource allocation to facilitate the implementation.

SA Health response

- There is a detailed budget for the EPAS Program extending out to June 2021 and the results of which are included in Cabinet submissions and actively monitored by the EPAS Program Board.
- Detailed Budget estimates for the implementation phases of the Program are maintained based on detailed estimates of staff numbers, infrastructure requirements, vendor requirements and goods and services requirements. These estimates are based on experience to date in implementing EPAS, including the current experience in implementing EPAS into the TQEH.
- Estimates to date for implementation at TQEH, a major site, show the Program is operating below SA Health's cost estimates, signalling the potential to improve the Program's financial position as it continues to other sites.
- Budget estimates for future sites will be updated as more detailed resource planning is conducted for each future site. This resource planning will give better indications of the specific timetable and resource profile required for each site.
- Planned rollout activities will be communicated to LHNs to allow for timely planning and resource allocation, as has been SA Health's practice. In addition to extensive executive stakeholder engagement within LHNs, the LHN Chief Executive Officer for the next site to be activated is invited to become a member of the EPAS Program Board.

6.2 Improvements required to strengthen monitoring of formal benefits realisation planning, tracking and reporting

Initial program expectations were that the implementation of EPAS would deliver a range of different financial offsets, benefits and opportunities for improved service delivery.

The Program does conduct some tracking of the financial benefits, including those realised and the impacts of delays.

The Program Finance Team performed a review of the benefits realisation in January 2016, at the request of SA Health Corporate. This review clarified the current state of the Program's ability to realise the benefits and highlighted significant further deterioration from the original estimates (refer to section 4.2).

We noted at the time of our review, however, that the Program's tracking was out of date.

In addition, there was no formal benefits realisation plan that identified how these benefits and offsets will be realised. There has been no formal tracking, management and reporting of progress to the relevant governance groups throughout most of the life of the Program.

We noted that SA Health plans to absorb and manage costs associated with unrealisable benefits from within its existing budget. In addition, SA Health advised that in many cases, planned benefits have been realised but have been counted elsewhere and acquitted against broader cost pressures in LHN budgets. Some benefit savings promised in the EPAS business case have been reflected through a reduction in SA Health's current and future overall operating budgets as allocated by Government.

Risk

Expected benefits and offsets of implementing EPAS may not be achieved.

Any further reduction in the expected benefits EPAS has the potential to result in operational cost pressures that will require a funding solution, particularly at LHNs.

Recommendation

As noted in section 5.5, SA Health should perform a review of the expected benefits realisation, in particular the functionality being delivered against the scope specified in the December 2011 business case.

The Program should develop a revised benefits realisation plan which identifies how these benefits and offsets will be realised.

Any further benefits realisation updates should be included in an update to Cabinet to satisfy their requests on the costs and benefits of the Program as a whole.

SA Health response

- An EPAS Program Board Financial Report is provided to the EPAS Program Board and the eHealth Steering Committee on a monthly basis. This report contains a section on the benefits realisation. This is discussed further in SA Health's comments relating to the implications in section 4.2 earlier in this response.
- The benefits realisation plan will be revised following the next stages of planning of the Program and an update provided to Cabinet. The benefit profile will be reviewed as part of this activity.
- SA Health will implement a renewed focus on benefit tracking and realisation.

6.3 Need to update the documented and communicated systems design methodology

The Program has some documentation for its EPAS system design approach. This documentation includes a standard configuration approach and future state site design and decisions made by clinical working parties.

We noted, however, that since the early development of some documentation, the Program's strategic approach changed from the sequential 'waterfall' approach to incrementally building functionality as needed for deployment at each particular site. This change in approach evolved following the first site implementation at the Noarlunga Hospital where the Program recognised that it was continually redeveloping and retesting system issues that had already been promoted to the production environment. Significant rework was required to resolve a number of system functionality issues and reconfigure complex components of the EPAS solution and its various modules to meet the requirements of the Australian healthcare environment.

Although the Program maintains formal change management procedures, we consider it important for the Program to also document its updated configuration approach. This will enable the Program to ensure that team members are consistently applying a structured approach to the requirement analysis, design and development process.

Risk

The lack of a current formally documented and communicated systems development methodology increases the risk of inadequate controls being applied to the requirement analysis, design and development process. This has the potential to result in further program schedule overruns and not meeting user requirements.

Recommendation

The Program should formally document the amended system design methodology adopted and communicate the agreed approach with all program resources.

SA Health response

The EPAS Program will improve the documentation of its system design methodology and communicate this with appropriate Program team resources.

6.4 Lack of a formal complete registry of the EPAS software escrow deposits

As part of this review we requested supporting information in relation to updates to the escrow agreement with Allscripts.[13] Copies of escrow deposits are forwarded to SA Health Procurement and Supply Chain Management.

We requested a copy of the most recent deposits and identified that SA Health does not maintain a formal register of escrow deposits matched against EPAS software updates. In addition, at the time of our request, SA Health could not provide records of any deposits following the release of major upgrades into the production environment in October 2014 (release 14.2) and May 2015 (release 14.3).

We note that it would appear these may not be isolated incidents as the Escrow Agent notified SA Health in March 2014 that no update source code material had been deposited under the agreement since April 2013. We are aware that during this period, the Program was in the process of activating the EPAS solution at initial sites and Allscripts was engaged soon after to make adjustments to the billing module.

Risk

There is a risk that SA Health may not be able to maintain or correct the current production version of the EPAS software and documentation for its own internal business purposes, in the event that the software vendor is no longer able to support the EPAS software product or a trigger event occurs under the terms of the escrow agreement.

Recommendation

SA Health should proactively monitor EPAS software updates and new release deposits, including all major software updates through the use of an appropriate register.

[13] Updates and new releases to the EPAS software are required to be deposited by Allscripts with the Escrow Agent responsible for holding the deposit package on behalf of Allscripts and SA Health. The escrow agreement entitles SA Health to use the deposit package to maintain or correct the Allscripts software and documentation for its own internal business purposes as per the agreement.

SA Health response

SA Health will continue to actively monitor EPAS software updates and new release deposits, including all major software updates. SA Health will create an appropriate register to assist with this monitoring task.

6.5 User segregation of duties could be strengthened and change control exceptions exist

We identified a lack of segregation of duties between EPAS system environments including development, user acceptance testing (UAT), pre-production and production.

Segregation of users between environments is integral to the system change process to reduce the likelihood of inappropriate changes being made to the EPAS production environment.

Segregation issues included 357 accounts with access to all environments, of which:

- 63 are program staff members
- 77 related to system and administration type activities
- five generic accounts had the potential to impact the change process.

Given the extent of these segregation of duties issues, we tested the Program's change management process by selecting a sample of change requests. Testing identified certain notable exceptions including:

- nine of 15 changes were developed and migrated to the pre-production and production environments by the same individual

- the UAT environment is currently not subject to regular refreshing. At the time of our review, the last time the UAT environment was refreshed to reflect the production environment was June 2015.

Risk

Without proper segregation of duties there is a risk that inappropriate or unauthorised changes will be made to the EPAS production environment.

Without regular update there is a risk that UAT will be performed in an environment that does not closely reflect the current production environment.

Recommendation

The Program should revisit the samples highlighted above and consider any other accounts with the potential to adversely impact the change management process and make appropriate alterations.

The Program should consider refreshing the UAT environment to reflect the current production environment on a more frequent basis.

SA Health response

- The EPAS Program has a strict change management process controlling all environments. Each environment has an owner and approvals are required by that owner before any change is permitted to be made in that environment. The EPAS Program dedicates 2 staff resources to monitor and control this process.

- There is a weekly release meeting where all EPAS Program Board approved changes are discussed, planned and reviewed. The Release Manager ensures all approvals are obtained prior to a change progressing to Pre-Production and Production.

- As part of change management and migration of changes across environments, EPAS has a process for peer review and validation by subject matter experts to ensure technical and functional compliance have been met.

- To mitigate the risk of having a change made incorrectly in Production, the EPAS Program uses the same clinical analyst to perform the change in Pre-Production and Production.

- There are multiple activation projects occurring concurrently (ie TQEH and new RAH) with each needing to test new functions at different and sometimes overlapping times. Practical management of the User Acceptance Testing (UAT) environment to juggle the needs of these parallel activities means, out of necessity, it is not kept regularly in sync with the Production environment. Final testing occurs in Pre-Production which is regularly refreshed (approximately every 3 months) from Production.

- SA Health intends to revisit the organisation structure of the EPAS Program team after implementation at TQEH. After the TQEH has been activated, critical mass will have been achieved in the operational user base, therefore SA Health will consider moving support activities into the business-as-usual support structures of eHealth Systems. This will provide further separation controls for movement of objects between Development, Test, and Production environments.

Appendix A – Update on prior review findings

The table below provides a brief status update on our prior review findings documented in the June 2015 Supplementary Report. We were advised that SA Health Internal Audit maintains a register to track the progress of items raised as part of our reviews.

Prior review finding	The Program advised it continues to address these challenges by:	Evidence of progress	Aspects of the risks associated with the finding remain
Lack of staff familiarity with EPAS and associated workflows at the new RAH	Continuing CALHN directorate meetings. Focusing on TQEH activation, including modified training strategies for each directorate. Working with CALHN to determine the clinical and patient administration functionality for the new RAH, including initial operations and the impacts of the hybrid medical record.	Yes	Yes (refer sections 5.1 to 5.4)
Configuration functionality specific to the new RAH may not be completed in time	Extending Allscripts contract for implementation support services until December 2017. Weekly EPAS Program Leadership and Planning Group (ELPG) meetings to control program scope, manage resources and Allscripts work activities.	Yes	Yes (refer sections 5.2, 5.3 and 5.5)
Demands on limited resourcing may impact implementation time frames	Continuing to monitor and track resource requirements on a weekly basis as part of the ELPG meetings.	Yes	Yes (refer to sections 3.3, 5.3 and 5.13)
Potential for further program scope creep may impact implementation time frames and budget	Strict scope control mechanisms through the EPAS Content Change Authority, ELPG and Program Board. Development of a matrix that clearly specifies roles and responsibilities of all parties. Development of a Communication Strategy approval by CALHN.	Yes	Yes (refer section 5.1)
Approved EPAS budget may require additional funding	Monthly reporting to the Board on the Program's financial status of the current stage and overall. Implementing strict scope control mechanisms (noted above).	Partly	Yes (refer sections 4.1 and 6.1)
Some EPAS functional issues remain unresolved	Conducting weekly issues management meetings with Allscripts, including revision of timesheets and work conducted. Conducting Working Group meetings to through issues relating to the new RAH.	Yes	Yes (refer sections 5.5 and 5.6)

Prior review finding	The Program advised it continues to address these challenges by:	Evidence of progress	Aspects of the risks associated with the finding remain
Some billing functional issues remain unresolved	Conducting weekly issues management meetings with Allscripts. Conducting Workgroup meetings to resolve billing issues. System tool used to manage and track issue progress.	Yes	Yes (refer section 5.7)
Further patient administration functionality is required before the system can be deployed to a large complex site, such as the new RAH	System tool used to manage and track issue progress. Scheduled weekly meeting to address patient administration issues and various PAS related working groups.	Yes	Yes (refer sections 5.5 and 5.6)
Problems with periphery devices to access EPAS	New RAH device strategy approved by the new RAH ICT Board in January 2016. Sunrise Mobile Care solution will not be available before 2017. From a useability perspective the bedside monitor solution has been altered somewhat from the original plan.	Partly	Yes (refer section 5.12)
EPAS rollout approach and time frame for additional sites outside the new RAH remains unclear.	Conducting scenario planning for the revised timeframe for the activation at the new RAH in September 2015. Planning sessions in relation to future site activations were planned to be conducted in March 2016.	Minimal	Yes (refer section 6.1)

Appendix B – Detailed functional model

We were advised that the functionality planned to be delivered for initial operation at the new Royal Adelaide Hospital includes:

- full patient administration functionality:
  - registration, admission and discharge
  - outpatient scheduling and waitlist
  - inpatient waitlist
  - medical records tracking
  - scanning
  - billing
  - coding
  - patient flow

- partial clinical functionality – initial operation:
  - alerts and precautions
  - clinical orders and results
  - specific specialty functionality for Emergency Department (ED), Intensive Care Unit (ICU) and operating theatres.

Remaining functionality available in the system is planned to be adopted by the new Royal Adelaide Hospital business units in a phased approach (mainly clinical functionalities). However aspects of the system required for a large site, but not critical, may be adopted after initial operations, including:

- communications of electronic discharge summaries and the issue of clinical outpatient letters

- patient flows including managing patient transport, bed turnovers and generation of patient flow reports (pending further decisions).

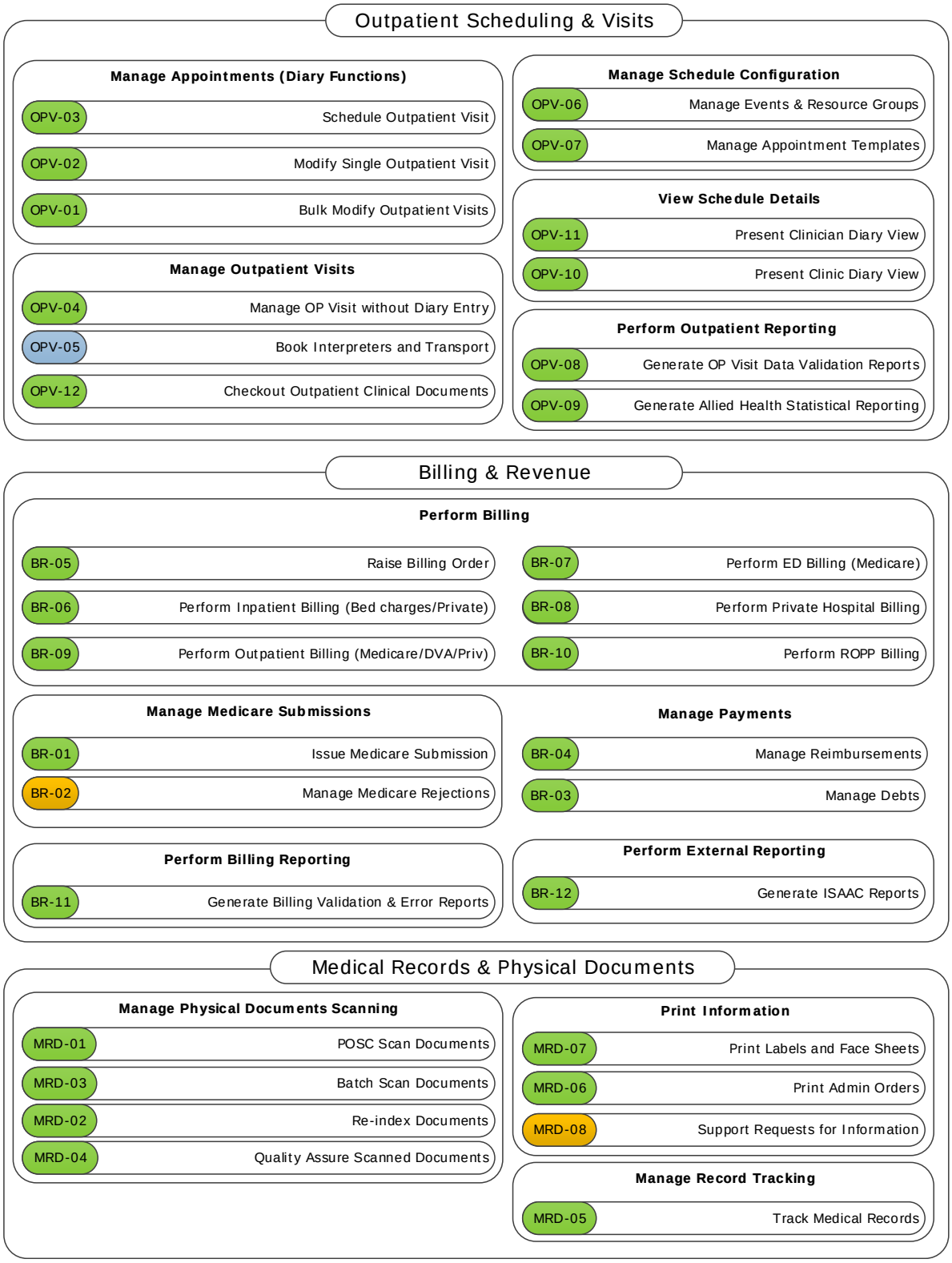
The remaining clinical functionalities are to be phased in after initial operation through to May 2017. This includes clinical documentation for inpatients and outpatients covering a range of documents including assessment documents, progress notes and care recorded over time. Other notable inclusions will be medication management providing electronic prescribing and administration functions.

At the time of this Report we note that the implementation approach for clinical functionalities is yet to be agreed (eg service by service or all new patients).

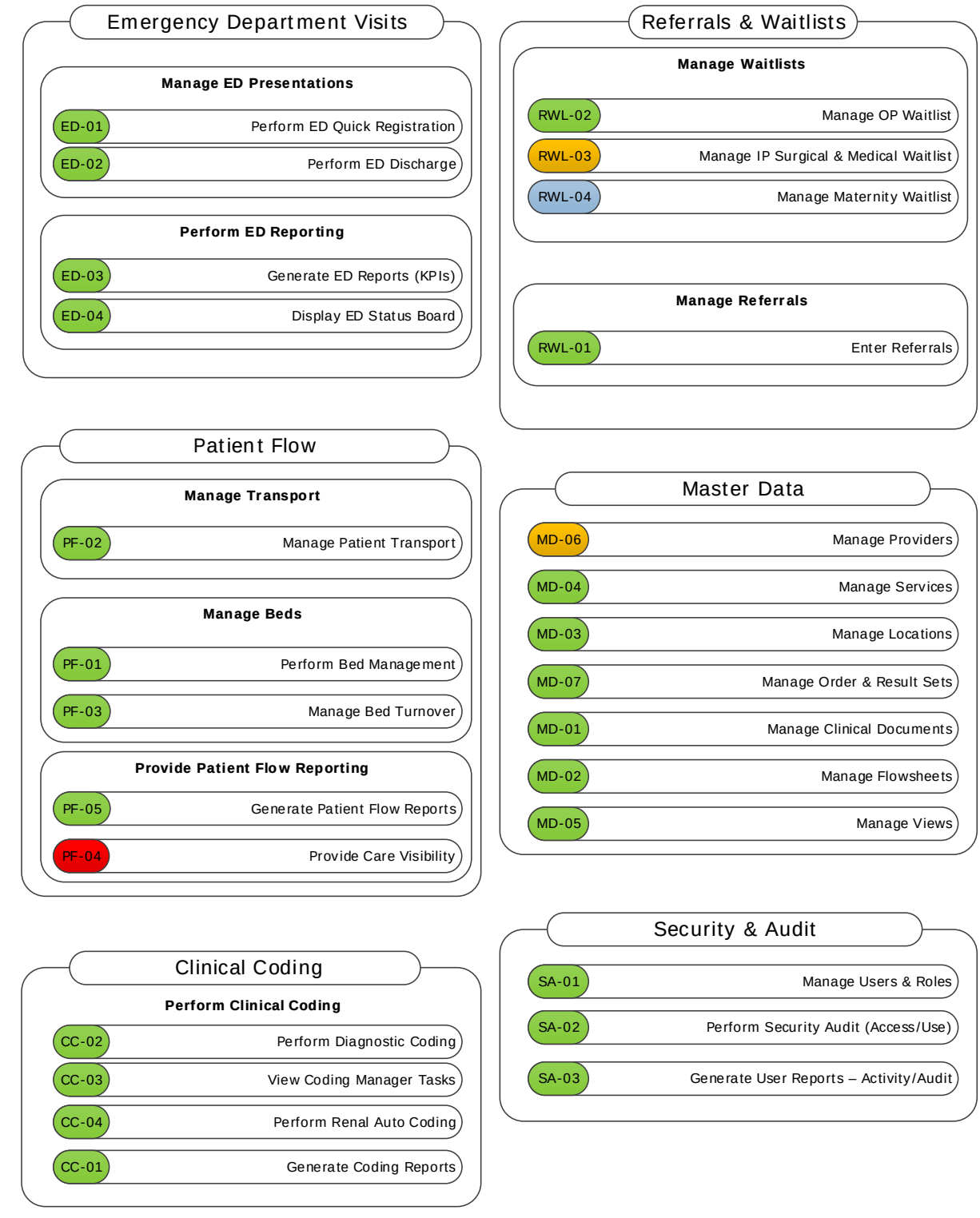
Further details are outlined in the following diagrams (dated 28 April 2016), which have been provided by SA Health. Certain functionality components have not been audited.

SA HEALTH DETAILED FUNCTIONAL MODEL (page 1) – 28/04/2016

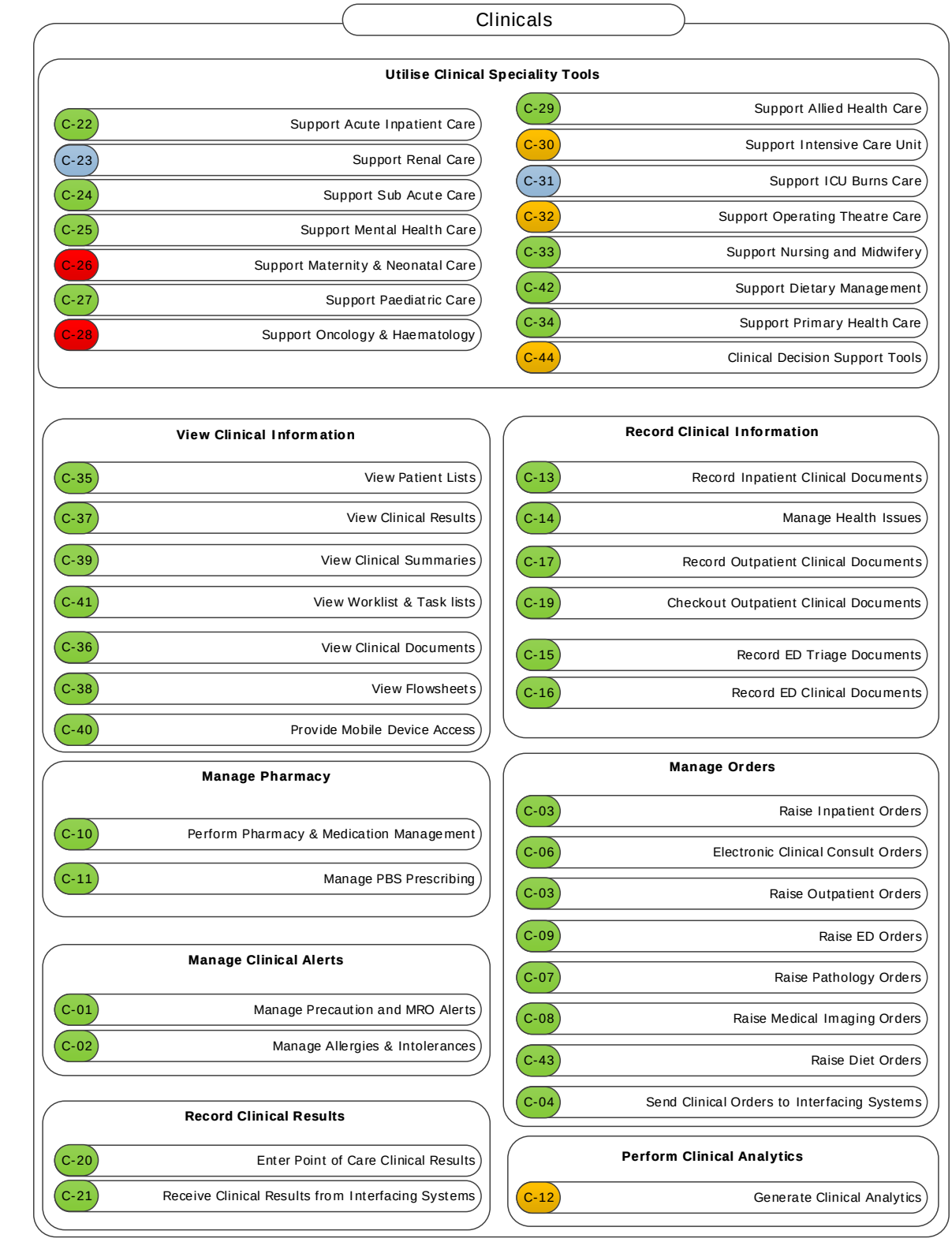
SA HEALTH DETAILED FUNCTIONAL MODEL (page 2) – 28/04/2016



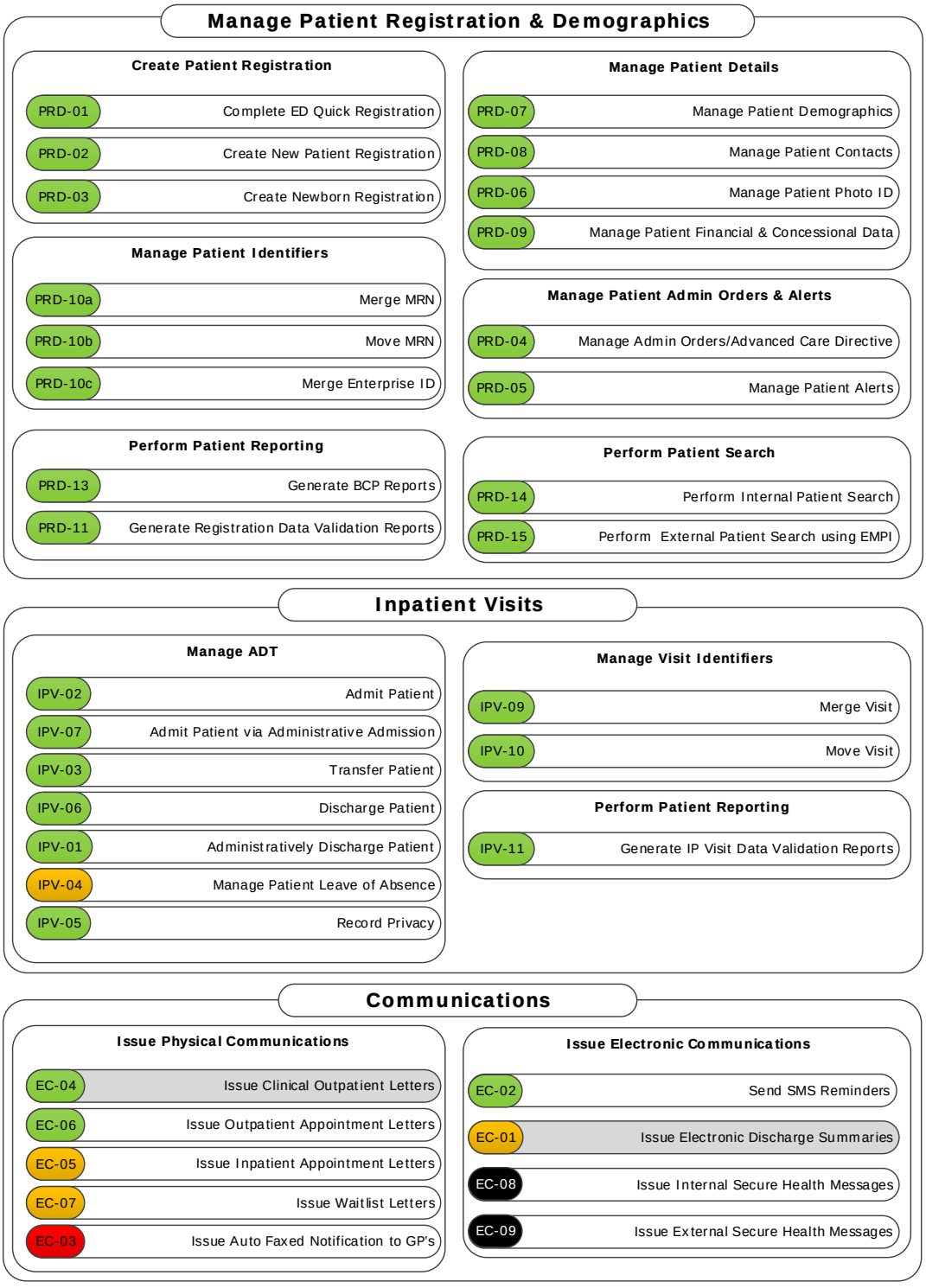
SA HEALTH DETAILED FUNCTIONAL MODEL (page 3) – 28/04/2016



SA HEALTH DETAILED FUNCTIONAL MODEL (page 4) – 28/04/2016



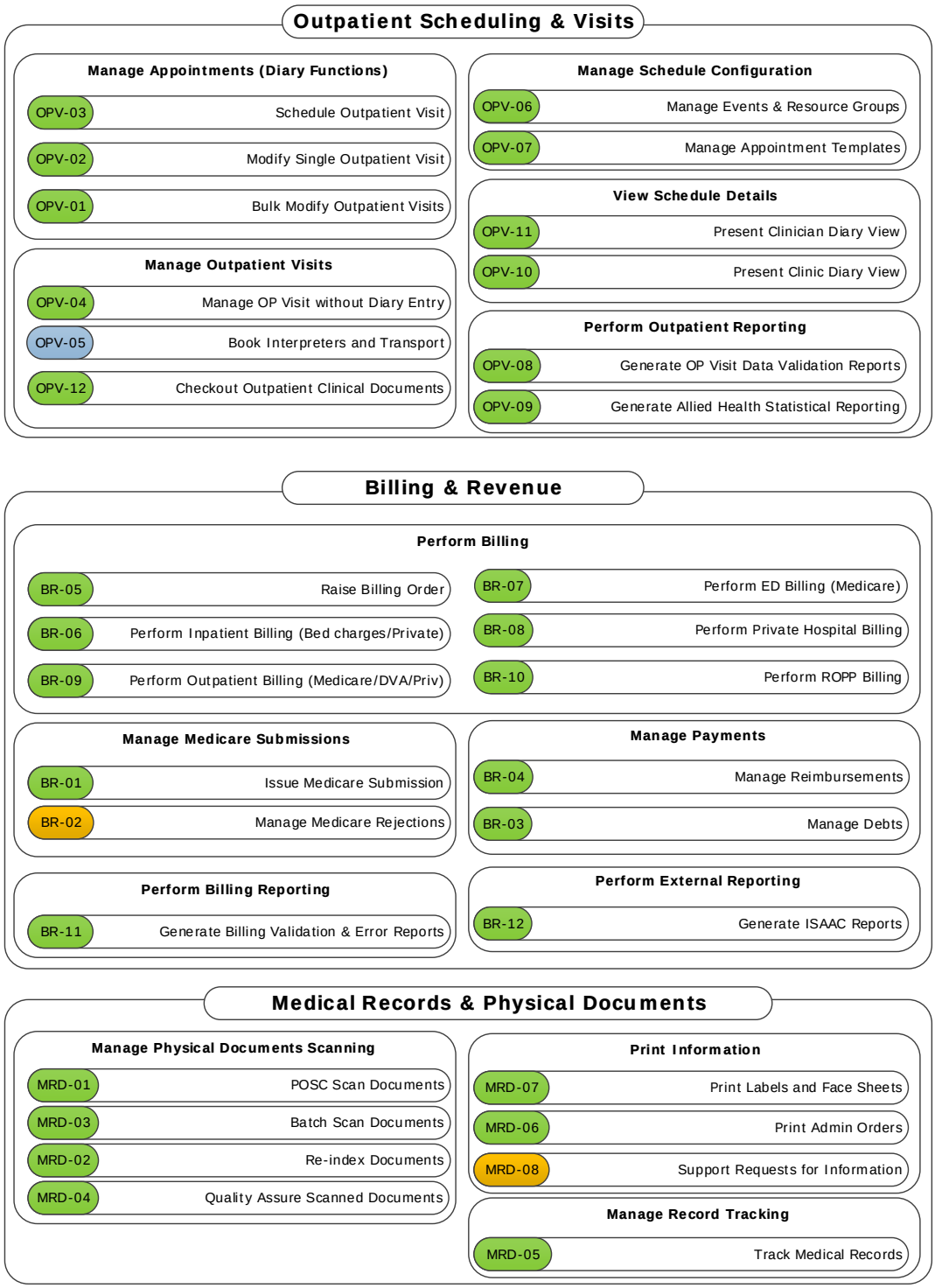
SA HEALTH DETAILED FUNCTIONAL MODEL (page 1) – New RAH Day 1 Functionality View



- Functionality not used
- Functionality is in development but not yet available for use
- Functionality is currently in use with workarounds
- Functionality currently used and meets requirements
- Future Enhancement Planned
- Excluded by CALHN for New RAH Day 1
- Pending CALHN decision on usage for New RAH Day 1
- Partially included by CALHN for New RAH Day 1

Note 1: Clinical Summaries, Document and Flowsheets created at other EPAS sites will be viewable, but for 'Day 1' these will not be created for New RAH visits.

SA HEALTH DETAILED FUNCTIONAL MODEL (page 2) – New RAH Day 1 Functionality View



Functionality not used

Functionality is in development but not yet available for use

Functionality is currently in use with workarounds

Functionality currently used and meets requirements

Future Enhancement Planned

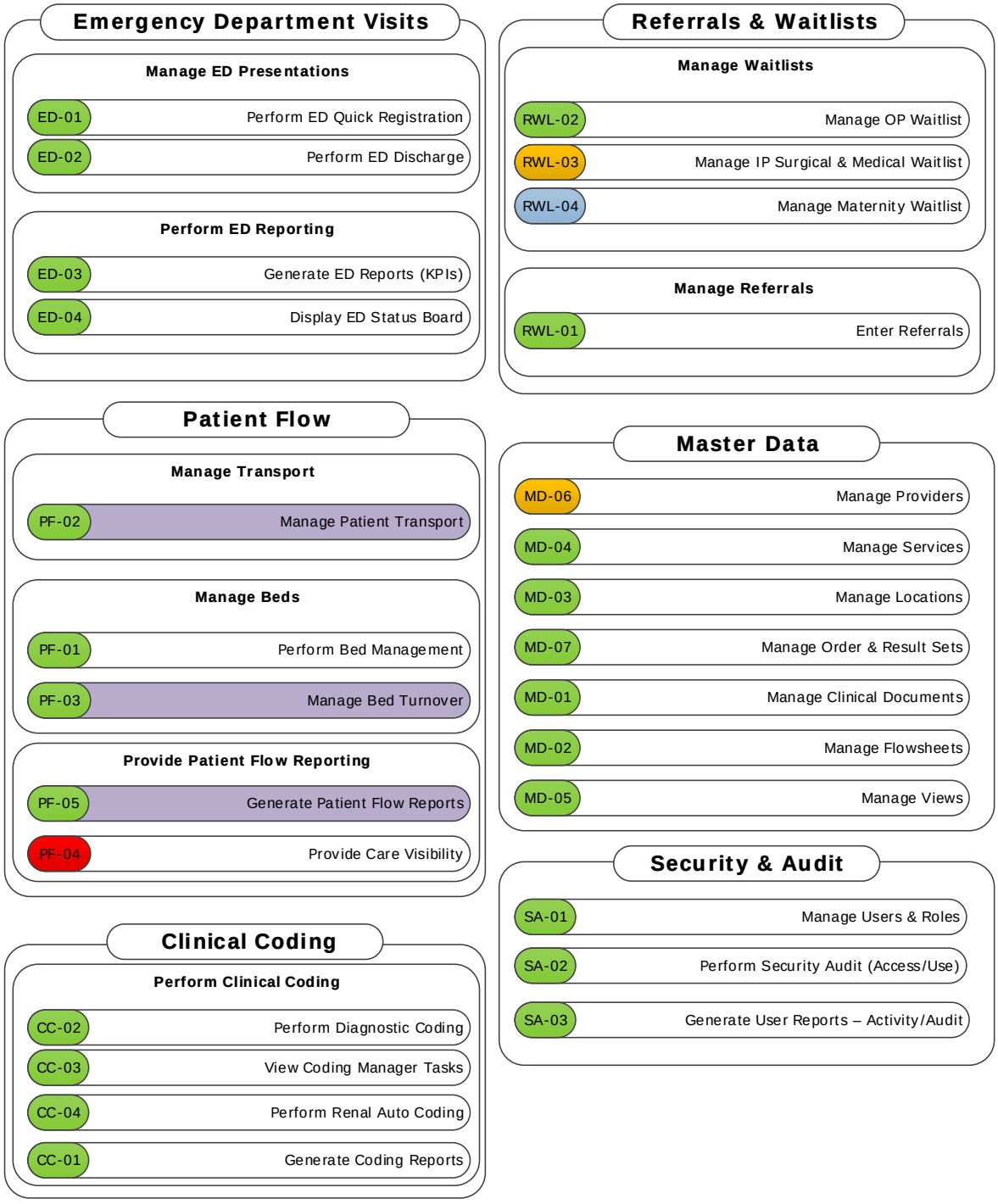
Excluded by CALHN for New RAH Day 1

Pending CALHN decision on usage for New RAH Day 1

Partially included by CALHN for New RAH Day 1

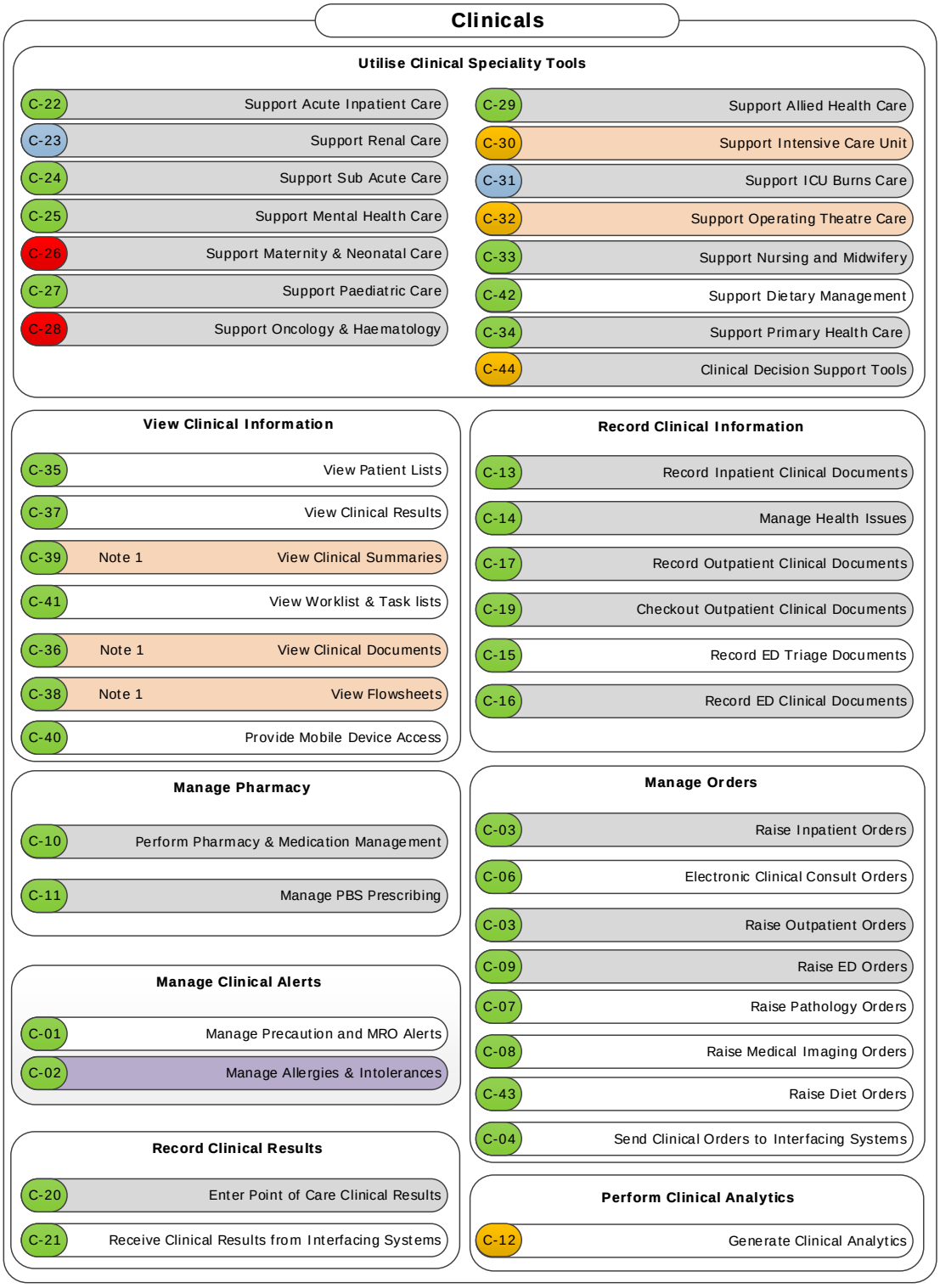
Note 1: Clinical Summaries, Document and Flowsheets created at other EPAS sites will be viewable, but for 'Day 1' these will not be created for New RAH visits.

SA HEALTH DETAILED FUNCTIONAL MODEL (page 3) – New RAH Day 1 Functionality View



Note 1: Clinical Summaries, Document and Flowsheets created at other EPAS sites will be viewable, but for 'Day 1' these will not be created for New RAH visits.

SA HEALTH DETAILED FUNCTIONAL MODEL (page 4) – New RAH Day 1 Functionality View



Functionality not used

Functionality is in development but not yet available for use

Functionality is currently in use with workarounds

Functionality currently used and meets requirements

Future Enhancement Planned

Excluded by CALHN for New RAH Day 1

Pending CALHN decision on usage for New RAH Day 1

Partially included by CALHN for New RAH Day 1

Note 1: Clinical Summaries, Document and Flowsheets created at other EPAS sites will be viewable, but for 'Day 1' these will not be created for New RAH visits.

Appendix C – In progress system development requirements

Functionality	Status	Current issue	Current impact/workaround
Manage Patient Leave of Absence	In use with workarounds	Leave of absence not excluded from accommodation charges.	Leave of Absence is excluded from patients' charges if it is recorded against the patient visit at the time of leave. However, if applied to the visit after discharge, a manual adjustment is required.
Book Interpreters and Transport	Future enhancements planned	No functionality currently available to manage interpreter services. EPAS is unable to perform bookings and manage interpreter payments.	Continued use of existing processes to manage interpreter services including, the use of paper records, IT systems and reporting produced from patient administration systems to identify patients that require an interpreter in advance.
Manage Medicare Rejections	In use with workarounds	Not integrated to receive Medicare rejection messages.	LHN Hospital Revenue Services are provided with a Medicare rejections report that contains relevant information to manually adjust the rejection.
Support Requests for Information	In use with workarounds	Reporting of patient information summary is not produced in a meaningful format to satisfy information requests.	No workaround at present. Difficult for readers to easily interpret the current report format and satisfy information requests including the Coroner, Freedom of Information, patient transfers to non-EPAS activated sites and potentially for BCP purposes.
Provide Care Visibility	Not yet available for use	It has not yet been determined if the functionality available is a suitable replacement for the current process for managing a patient's journey.	Manual tracking of patient movement through the existing non-electronic patient journey boards.
Issue Inpatient Appointment Letters	In use with workarounds	Not able to easily reference a copy of a letter sent to a patient.	A patient audit report is used to identify patient letters.
Issue Waitlist Letters	In use with workarounds	Not able to easily reference a copy of a letter sent to a patient.	A patient audit report is used to identify patient letters.
Issue Auto Fax Notifications to GP's	Not yet available for use	Unable to notify GP/referrers of key patient events (admission, discharge, and outpatient visit) by fax.	Relevant information is printed off and manually faxed to the recipient.
Issue Electronic Discharge Summaries	In use with workarounds	Unable to send secure discharge summaries to internal and external users, including GP/referrers (refer to internal and external secure health messaging below).	The discharge summary is printed off and manually faxed to the recipient.

Functionality	Status	Current issue	Current impact/workaround
Issue Internal and External Secure Health Messages	Functionality not used	The ability to send internal secure messages has not yet been specifically requested by the business. It requires development and agreement of workflows. The ability to send external secure messages has not received internal eHealth Systems approval.	Relevant information (including medication requests) is printed off and manually faxed to the recipient.
Manage IP Surgical and Medical Waitlist	In use with workarounds	Current functionality for inpatient elective waitlist does not provide the ability to manage the overall scheduling for visit and waitlist orders.	Requirement to create visits and waitlist orders for each individual patient on the waitlist. Future scheduled visits are parked so they do not appear in clinicians work lists. The data is managed operationally through the use of reporting mechanisms.
Manage Maternity Waitlist	Future enhancements planned	EPAS has the ability to manage maternity waitlist. The only outstanding requirement is to create a form containing a new waitlist category for maternity. This is achievable for the next major maternity site.	Not currently required at current activated sites.
Manage Providers	In use with workarounds	No ability for sites to add provider details.	If provider details are not currently listed in the GP registry, sites are required to call the EPAS service desk to request the input of the provider details.
Support Renal Care	Future enhancements planned	EPAS does not offer the renal functionality that is currently available in OACIS.	Continued use of OACIS to support dialysis units.
Support Maternity and Neonatal Care	Not yet available for use	Additional configuration work is required to support these functions prior to rollout at FMC and WCH.	Service not required for current sites.
Support Oncology and Haematology	Not yet available for use	Not all functionality configured and available for use. Some functionality in use at RGH.	Some paper based processing to support the service.
Support Intensive Care	In use with workarounds	Not all functionality configured and available for use. Integration between all devices and EPAS is limited to physiological monitors.	Some manual data entry required.
Support ICU Burns Care	Future enhancements planned	The use of photos and specialised documentation is not currently configured in EPAS.	Paper based documentation is required that is scanned into EPAS.

Functionality	Status	Current issue	Current impact/workaround
Support Operating Theatre Care	In use with workarounds	EPAS is not currently able to fully Support Operating Theatre Care, including patient scheduling, KPI data collection and anaesthetic records.	Different data element are currently recorded in different ways including, clinical documentation recorded in EPAS, paper charts are used for Anaesthetic records and other data collection such as, KPIs related data and scheduling remains in the legacy ORMIS system.
Generate Clinical Analytics	In use with workarounds	Limited number of staff are trained in how to access analytical information through Clinical Performance Management.	Ad hoc analytic requests are sent to the SA Health reporting team and the Program to gather required information. The Program is working with the SA Health reporting team develop EPAS data and reporting on a monthly basis and assist in responding to these ad hoc site requests.

Appendix D – Notable functional components in original business case not yet available for use

Functional scope item identified in original business case	Functionality/Module not yet available for use
Clinical decisions support	
Provides real time access to extensive, sophisticated clinical decision support tools and information that can be adapted to suit the South Australian health care environment.	We note that the Program has implemented Sunrise Clinical Care which supports the majority of clinical functionalities (refer Appendix 1). The Allscripts Surgical Care module is not completely fit for purpose to support patient scheduling and recording other data collected including KPI and anaesthetic records. We were advised that additional work is required between the Program and Allscripts to develop a fit for purpose solution for the Surgical Care module.
Proactive health management	
A complete set of tools to manage immunisation schedules and wellness events for patients to support enhanced proactive clinical care including, monitoring health care plans, initiating patient call back, timely alerting and early intervention to avoid exacerbation of a condition or hospital admission.	Functionality is available but not yet provided to users. Australian Immunisation schedules would need to be built prior to using this functionality.
Patient education log	
Education materials and resources for patients (ie information sheets for patients to take home) and enables caregivers to track and record education material given to a patient during a visit.	Functionality is available but not yet provided to users. Requires review and potential modification of all education material to ensure it reflects Australian practices. Requires a large level of effort and has been put on hold until all sites are activated.
Secure health messaging	
Enabling patient information and to be communicated between health professionals internal and external to SA Health (ie general practitioner) who may or may not have access to EPAS.	Functions are not available for use.
Signature Manager	
Enabling EPAS users to officially sign orders, documents and verify (approve) orders remotely and across multiple patients and charts through use of a secure electronic signature.	Functionality is available within Sunrise Clinical Care to support the clinical specialty tools. We were advised the functionality is partially in use and requires correction.

Functional scope item identified in original business case	Functionality/Module not yet available for use
Record Manager	
Enabling users to automate and manage both electronic and paper medical records. This includes: • up-to-the minute access to information about the location of case notes and charts • automatic overdue reporting by location and individual • complete history and audit trail of all records.	Functionality is available within Sunrise Record Manager and is noted as part of Medical Records and Physical Documents in the EPAS Detailed functional model (Appendix B). We were advised that automatic overdue reporting by location and individual refers to deficiency management embedded within this module. This assembles charts for review by analysts and sends electronic documentation to clinicians for completion without user intervention. This functionality is not in use.

Appendix E – Background on historical paper medical records storage, delivery and scanning at the new RAH

Access to historical paper medical records

The new RAH Program advised that the existing RAH maintains a considerable sized Medical Records Department, that currently contains approximately 350 000 files weighing 520 tonnes spread across two buildings. However, at any given time approximately 7000 to 8000 files are dispersed in various locations throughout the hospital.

An SA Health engaged external consultant's review advises that an urgent paper medical record request can be obtained in 10 - 15 minutes. However, the new RAH Program advised there is no guarantee a paper medical record will be located in the Medical Records Department at the time of the request. In addition, there are currently two deliveries per day from a third party storage supplier to the existing RAH to satisfy historical paper medical record requests.

The new RAH Program advised that in most cases the existing RAH emergency department are able to treat patients without the requirement to reference a historical medical record. We also note that currently, when a patient is transferred from another hospital to the existing RAH, there is no historical paper medical record transferred with the patient.

It is planned that an urgent request at the new RAH, if readily available in the existing RAH Medical Records Department or at the offsite third party storage facility would be able to be provided within the hour.

We were further advised that paper medical record requests outside urgent request are requests for additional volumes.[14] These additional volume requests are currently provided in approximately two hours. It is anticipated that the delivery time frames for these type of requests will not be altered significantly at the new RAH.

The following table summarises and compares paper medical record delivery times.

Request	Average daily total patients	Average day requests (where supplied)	Average night requests (where supplied)	Existing RAH delivery timeframes	New RAH expected delivery timeframes	Common types of requests
Urgent request (ED patients)	198[15]	33[16] (16.7%)	18 (9.1%)	10-15 mins (approx. 80% of the time)	Within 1 hour	ED, surgery and outpatients
Additional volume request (Outpatients including day surgery and speciality areas)[17]	953	128[18] (13.4%)	n/a	2 hours (approx.)	2 hours (approx.)	Outpatients including day surgery and speciality areas.

[14] SA Health advised that a single paper medical record volume is approximately 3 cm thick which includes treatment records over a period of time.

[15] SA Health advised that corporate statistics indicated in April to June 2015 there were 17 810 ED presentations making an average of 198 per day.

[16] SA Health advised statistic of the supply of requests medical records for a 10-day period between 21 July 2015 to 3 August 2015 (the same period was tested for average night requests).

[17] Additional volume statistics have only been captured for outpatients. Therefore, it does not include additional volumes supplied for inpatient elective surgery.

The new RAH Program is in the process of investigating a range of options to provide clinicians with the right medical records in appropriate time frames. This includes the extent of volumes and timing of scheduled deliveries to the new RAH in advance of appointments (for example, the day prior). It is planned that the existing RAH Medical Records Department will receive alerts in EPAS in advance of a patient appointment. This is planned to continue to provide sufficient time to satisfy patient records requests for appointments similar to the method currently employed at the existing RAH through the legacy APMS system.

SA Health anticipates that the requirement to retrieve paper medical records will be alleviated as the new RAH progresses to full use of the EPAS clinical functionality.

We were advised that medical staff at the new RAH will also have ability to view patient record information from a number of electronic sources including:

- EPAS for patients that have visited an EPAS activated site
- OACIS for all recorded patient summary of care
- All information recorded in APMS (read only)
- certain information in the existing legacy ED attendance system (HASS-ED) is planned to be migrated to EPAS including patient alerts and precautions.

Planned model for storage and delivery services

The current planned model for storage and delivery of historical paper medical records at the new RAH will progress through the following phases.

Phase	Phase	Medical record storage	Delivery
1	Initial operations at the new RAH	Existing RAH and offsite third party storage facility	Courier delivery from existing RAH and offsite third party storage facility
2	Full implementation of the EPAS solution at the new RAH (expected approximately five months after initial operation of the new RAH)	Existing RAH and offsite third party storage facility	Courier delivery from existing RAH and offsite third party storage facility
3	Full decommission of the existing RAH site (nine months after initial operation of the new RAH)	Offsite third party storage facility	Courier delivery services from offsite third party storage facility
4	No reliance on paper medical records	EPAS	n/a

[18] SA Health advised the average statistic of the supply of additional volume requests medical records for two period tested between 8 February to 12 February 2016 (668 volumes supplied) and 15 February to 19 February 2016 (613 volumes supplied).

Tracking of paper medical records

For new RAH operations, it is planned that patient paper medical records will be barcode scanned to track movement between locations. We were advised that the current EPAS Record Manager module enables the automation and management of both electronic and paper medical records. This includes a complete history and audit trail of all record locations through barcode scanning mechanisms. This record tracking method is currently used at existing EPAS activated sites.

Extent of paper medical records volume delivery

The new RAH Program advised that certain benchmarking performed identified that the existing RAH currently provides larger volumes than other Australian hospitals who mostly supply a single volume. Currently half the existing RAH departments receive a single volume, the other half receive two volumes. Day surgery units receive up to five volumes, mostly for anaesthetists.

Scanning of paper medical records into EPAS

We were advised that the new RAH ICT Program is still working on the final approach for scanning paper into EPAS, particularly from initial operation through the phased approach to the utilisation of full clinical functionality.

The new RAH Program expects physical delivery of an urgent request to be within the hour.

The new RAH Program advised that paper medical record requests from the existing RAH Medical Records Department are performed by administrative clerks.

These staff members are not trained or responsible for interpreting clinical data and would find scanning medical records to the correct patient file locations in EPAS challenging without appropriate training.

The Program advised of the following scanning functionalities planned at the new RAH. These are:

- Point of Service Capture (POSC)[19] – desktop scanners used to scan relevant patient information and attach to a patient file at the location where the patient is receiving care

- Batch Scanning – three large scanners are planned to be installed in the new hospitals Patient Information Services located on level 3. These scanners can scan a large number of pages in a single batch. They utilise header sheets to determine different patients and scanned document categories. Staff then check the scans after processing to ensure correct allocation and commit then to the relevant patient records.

[19] The Program advised that POSC desktop scanners are unable to print A3 documents. These documents are required to be scanned by the Batch Scanners.

An SA Health engaged consultant's review presented SA Health with certain scanning options for consideration to increase the use of EPAS and reduce the extent of paper record use and the time to transport paper medical records, including:

- prior to the move, at the existing RAH, commence scanning on discharge or for frequent patients (estimated to be in excess of 37 000 patients with three visits or more)

- scanning on demand (rather than transport).

In March 2016 the new RAH Program advised that certain test scanning scenarios were conducted of frequent paper medical records requests, such as chemotherapy and renal patients. This testing was to determine the feasibility of scanning existing medical records for staff to access in EPAS at the new RAH (either prior to the move or scanning on demand). Testing revealed that scanning a single volume of a patient's paper medical record and attaching the patient's file in EPAS can take between 40 to 60 minutes. Timing was dependent on the following:

- dissemination
- preparation for scanning
- scanning
- reassembling
- quality assurance of scanned file.

The following table displays the outcomes of this testing:

Scenario description	Volume thickness	Preparation	Scanning	Completion	Total time for scanning
Single volume of a chemotherapy patient	3 cm	17	15	24.5	56.5 minutes
Single volume of a renal patient	3 cm	9.5	12	22.5	44.0 minutes

Given the considerable time and resource costs associated with scanning historical medical records, it was considered not to be a viable option.

The new RAH Program advised that nurses and medical staff will only be required to scan minimal information into EPAS, such as a patient referral received in advance of an appointment. All other collated medical records during a patient's stay are planned to be sent to Patient Information Services for scanning into EPAS. A compactus is located in Patient Information Services for temporary paper record storage.

An external consultant engaged by SA Health, noted that most hospitals in Australia have some form of hybrid record, consisting of a combination of paper, scanned records and data entered directly into systems.

Appendix F – SA Health response to recommendations and status of Program

The following commentary has been extracted in full from SA Health's formal response to our letter, dated 17 June 2016.

DEPARTMENT FOR HEALTH AND AGEING – ENTERPRISE PATIENT ADMINISTRATION SYSTEM 2015-16 REVIEW RESPONSES MAY 2016

The headings below use a numbering scheme in reference to the numbering of the audit report for ease of cross reference. Sections from the report not appearing in this management response are agreed, without further commentary.

1.1 Introduction

SA Health agrees with the summary status provided in the report's introduction.

In addition, we feel it important to acknowledge that clinical benefits achieved at 'live' sites include:

- Patients have a full clinical history that is readily accessible. This reduces the need for patients to constantly repeat their medical history and details at EPAS activated sites, with the potential to improve patient care.
- Continuity of patient information across EPAS activated sites has provided clinicians with timely access to patient information that would have previously been held at an individual site in a paper record.
- Multiple users now have access to the one clinical record and can review patient information simultaneously.
- Prior to EPAS, patient records were handwritten and often difficult to read leading to potential errors through misinterpretation of illegible handwriting and poorer patient care.

2.2 Stabilisation Phase Update

SA Health acknowledge that on any given month there remain a number of issues raised, tracked, and resolved through our 'defect' management system and processes.

We wish to reinforce our view that the Stabilisation Phase of the EPAS Program has been successful and achieved its stated objectives.

SA Health has employed a professional executive team that is experienced in leading large complex initiatives which is appropriately managing and governing the Program. The team advises that the number of issues being raised and resolved is not unusual for a Program of this nature, nor an indication that there are material quality issues with the software.

3.3 New RAH EPAS functionality – initial operation

The full clinical functionality of EPAS required by the new RAH will be delivered to the hospital for initial operations. As stated in your report, SA Health has determined at this time that not all of this functionality will be used.

The length of time taken to determine which functionality would not be used was driven by the need for in-depth discussion with a range of stakeholders including clinical leaders, hospital executives, and advice from external consultants. The key premise behind this decision was to ensure hospital staff are able to cope with a new facility and new computer system while keeping patients safe.

SA Health believe the process followed to determine functionality to be used for initial operations demonstrates prudent risk management, consultation and governance.

4.1 Updated program costs

Some clarification is required with respect to the observation that the Department of Treasury and Finance provided a costing comment to the December 2015 Cabinet Submission which stated it did not agree with the budget impact because it excluded the estimated cost to complete the roll out.

Footnote 8 identifies that the December 2015 Cabinet Submission was not seeking approval for activation of any sites beyond Implementation Stage 2.

SA Health wish to clarify that the Cabinet Submission did contain an estimate of costs to complete the entire roll out scope within the 10 year total cost of ownership period. This was included in the forecast shortfall of $29 million over the 10 year period, however detailed estimates for each remaining site were not provided.

SA Health advise that actual costs to date for implementation at TQEH, the first large site, show the program operating below the estimates for that site, signalling a potential to improve the Program's budget position as it progresses to other sites.

4.2 Updated benefits realisation

SA Health acknowledge that the benefits profile of the Program has changed. Some of this relates to the timing of benefits due to the current timeline compared to the original business case. In other instances, some of the original assumptions have not been held to be true and so those benefits will not be realised.

In many cases, planned benefits have been realised but have been counted elsewhere and acquitted against broader cost pressures in Local Health Network (LHN) budgets. To ensure there is no double counting of achieved savings, those benefits have not been recorded from an accounting perspective against the EPAS Program.

The benefit savings promised in the EPAS business case are reflected through a reduction in SA Health's previous, current, and future overall operating budgets as allocated by SA Government. Through this mechanism, SA Health is accountable for the realisation of benefits and has already acquitted $30.5 million of EPAS benefit savings through to June 2015.

It is acknowledged that improvements can be made in benefit tracking and reporting.

5.1 Instances of deficiencies in governance communication and decision making

Audit Recommendation

- SA Health continue with mitigating controls and treatments for a robust governance structure and approach.

Response to Recommendation

- SA Health accepts the recommendation. The governance structures and approach is already in place will be continued, with associated management of mitigating controls and treatments.

5.2 Lack of responsibility, clarity and timely agreement on EPAS functionality for initial operation at the new RAH

Audit Recommendation

- CALHN define the EPAS business requirements (functionality) to be adopted for initial operation at the new RAH.

Response to Recommendation

- SA Health accepts the recommendation. SA Health will ensure that CALHN complete the definition of its requirements in a timeframe that enables the EPAS Program to deliver its associated functionality for initial operation at the new RAH.

5.3 Certain EPAS workflows at the new RAH are yet to be finalised

The timing of completion of new RAH workflows is consistent with the current timetable for activation of EPAS at the new RAH. It is not indicative of an issue or risk and SA Health believe its inclusion in a report of audit findings is unnecessary.

Audit Recommendation

- The Program, CALHN and new RAH ICT Program develop an approach to finalise all new RAH workflows involving EPAS in a timely manner.
- SA Health revisit its resourcing schedule to ensure that sufficient resources are allocated to complete these activities. The relevant governance committees should be provided with frequent updates by the EPAS Program, CALHN and new RAH ICT Program.

Response to Recommendation

- SA Health has an established approach to finalise new RAH workflows including those involving EPAS. The EPAS Program team will continue to engage with CALHN at the new RAH workflow workshops, providing subject matter expertise, and the EPAS Program team provides appropriate resources to assist the mapping workshop and will continue to do so.
- The relevant EPAS documentation has been supplied to CALHN and new RAH ICT Program accordingly to assist in the new RAH workflows process.
- Workflow development progress and status are regularly monitored by governance forums in both new RAH and EPAS Programs. SA Health will continue reporting and monitoring as recommended, including the provision of sufficient resources.

5.4 Increased input by the Program for some new RAH workflows is required

Since early 2016 CALHN has led discussions regarding the development of workflows planned for the new RAH. EPAS subject matter experts are engaged in the CALHN process, attending workshops and providing advice.

Audit Recommendation

- The Program continue its involvement in the development of the workflows planned for the new RAH.

Response to Recommendation

- SA Health acknowledges the risk and believes it is adequately mitigates and monitored.
- The recommendation is accepted. SA Health will continue active involvement of the EPAS Program in the development of new RAH workflows that relate to the system.

5.5 Some system development requirements are still in progress

Audit Recommendation

- The Program discuss and formally agree on proposed system developments and required workarounds with current activated sites, CALHN and Allscripts. This includes the full workflow impact when proposing new system changes.
- The Program should continue to utilise the clinical working group to assess system developments, defects and system changes. It should also consider the use of scenarios analysis to increase the likelihood of identifying all potential impacts on current and future workflows.
- The Program review the functionality being delivered against the scope specified in the original business case.

Response to Recommendation

- The EPAS Program will continue, as it always has, assessment of the impact and to work closely with Allscripts on proposed system developments and new workflows with current activated sites.
- SA Health will continue, as it always has, to utilise the EPAS Advisory Council as well as clinical working groups and relevant state-wide groups such as the South Australian Medicines Advisory Committee (SAMAC) to assess system developments, defects and system changes.
- SA Health will review the functionality being delivered against the scope specified in the original business case.

5.6 New system issues and defects are being raised on an ongoing basis

Requests for new functionality, user preference to improve the useability of currently effective system functions, and functions that do not perform correctly are all collectively referred to as 'defects' within the EPAS Program.

As noted in your report, issues being continually raised, and continually fixed, is part of the normal operational process for a large complex system such as the EPAS solution. SA Health has employed highly skilled executive leaders who have experience in many large and complex system deployments across Australia and internationally to manage, oversee, and govern the EPAS Program. SA Health believes the volume of issues arising is not unusual for this system at this stage of its lifecycle and does not indicate significant quality issues with the underlying software.

The EPAS solution replaces dozens of legacy systems each functioning with hundreds of 'defects' whilst adequately serving the needs of SA Health for more than 20 years. Furthermore it is quite 'normal' to have workarounds where the impact is manageable.

Audit Recommendation

- As per section 5.5.

Response to Recommendation

- SA Health will continue with its well established practice to monitor and resolve system issues and defects and these will be scheduled according to their priority. There is an effective process in place that ensures items are assessed and prioritised appropriately. The EPAS Program continues to enhance the system as change requests are approved by the EPAS Program Board. The Program closely monitors defects and prioritises the work to resolve them according to severity.

5.7 Billing issues and defects have been experienced and some remain

Audit Recommendation

- As per section 5.5.

Response to Recommendation

- SA Health will continue to monitor and resolve system issues and defects and these will be scheduled according to their priority.

5.7.1 EPAS is currently not directly integrated to send and receive messages with Medicare

The EPAS solution currently processes Medicare claiming on behalf of clinicians electronically, including submissions and payment reconciliation and has performed this function for the first activated site and all subsequent sites.

Although not in the original scope of the EPAS solution, it was able to integrate with an existing SA Health system to enable electronic submission. Further developments have been introduced into EPAS to ensure validity and correctness of submissions. Future enhancement has been specified to the vendor to enable management of rejected Medicare claims within the EPAS solution.

5.7.2 Charges not automatically being generated for outpatients including compensable (Medicare and DVA) and non-Medicare

The audit report states that, with respect to the observations, "This is despite the Program's advice that the outpatient billing is operating effectively …". SA Health re-asserts that outpatient billing is operating effectively and that having a manual step in the business process does not render the process ineffective.

EPAS generates charges for outpatient Medicare claims electronically through an existing SA Health billing system. EPAS has also been able to generate charges for compensable and non-Medicare patients, although the billing does not automatically trigger in the system requiring user action to generate the charge.

The system generates reports that identify these particular patients so that the billing can be manually triggered.

It is acknowledge that removing the manual process step would improve the business process. Specification for changes to the system to facilitate automatic triggering of the charging for compensable and non-Medicare patients have been approved and are planned for implementation before EPAS is used at the new RAH.

5.7.3 Manual checking to identify instances of inaccurate charges billed to patients

The EPAS Program is currently testing a solution provided by the vendor to improve the ability to appropriately manage Long Stay billing charges that will allow retrospective changes to the record while the patient is still admitted.

Improvements have been made in May 2015 to give patient billing staff additional control over the management of long stay billing trigger dates. A further update to the billing function was also applied in May 2016 that has fixed the anomaly in the system in relation to correct calculation of billing patients with leave days, reducing the requirement to manually check invoices of patients.

5.8 Implementation challenges at TQEH

The audit report notes "a number of tasks and activities were planned for completion quite close to the scheduled activation in June 2016". This being an audit report, we wish to reassure readers that this does not represent a problem or deficiency in the Program. It is normal for a number of activities to be completed close to the activation date to ensure the most effective use of resources. It is not indicative of a problem.

Audit Recommendation

- The Program Board continue to monitor progress and recommend any necessary resourcing adjustments. This is to ensure scheduled implementation is achieved, there is appropriate levels of post-activation support are provided to TQEH staff and there is no impact on the scheduled outstanding new RAH activation activities. This includes data migration, site and device configuration, business change and training.

Response to Recommendation

- This recommendation reflects SA Health's existing and long standing practice i.e. The EPAS Program Board and eHealth Steering Committee will continue to monitor TQEH and new RAH implementation progress and make any necessary resourcing adjustments to ensure appropriate post-activation support while continuing with scheduling new RAH activities.
- With less than two weeks until TQEH activation at the time of writing, SA Health is on track to activate the site as scheduled and is confident the Program is appropriately resourced.

5.9 Detailed data migration planning for some aspects of the TQEH may still be required

The migration of allergies and intolerance records was not included as part of the original business case, and these records have not been migrated for previous activation sites. Subsequently, CALHN made a decision to migrate the allergies and intolerance records stored in HASS-ED (the legacy Emergency Department system). This was a late requirement which has been addressed appropriately. There are no other examples of additional data migration requirements that SA Health is aware of.

Audit Recommendation

- Through consultation with CALHN, the Program ensure that all legacy system data requirements are completely understood at TQEH and new RAH.

Response to Recommendation

- The EPAS Program team has, in consultation with CALHN, documented all legacy system data requirements for TQEH and new RAH to be decommissioned and archived. Access to these legacy systems will be available in the legacy system archive application.

5.10 Potential for incomplete training activities for new RAH staff

Audit Recommendation

- Through the existing groups and committees, the Program determine CALHN's staff availability and plans to complete their EPAS training activities.
- SA Health continue to identify and address any perceived training gaps so the Program can appropriately plan and resource for upcoming training activities.

Response to Recommendation

- Training hospital staff to use a large complex system such as EPAS must occur as close as practicable to when staff will use the system in operation else the training investment is wasted and must be redone as knowledge fades without use.
- The availability of staff to complete training activities is a risk that the EPAS Program manages very effectively. This risk exists for all EPAS deployments and has been managed for all previous locations that have activated.
- The CALHN business Directorates are specialist clinical divisions such as medical, surgical, allied health and critical care. Training approaches have been developed for each specialist clinical division related to the functional scope for each Directorate.
- The EPAS Program will continue, as has been the practice, to work closely with CALHN and the new RAH training team to determine staff availability and plans to complete their EPAS training activities.
- SA Health will continue to monitor and address any perceived training gaps so the EPAS Program can appropriately plan and resource for upcoming training activities.

5.11 Challenges for new RAH storage and delivery of historical paper medical records and scanning

Commissioning a system such as EPAS in a large hospital with partial paper clinical records is completely normal. International and interstate experience shows it is commonplace for implementation of electronic medical records at large hospitals of equivalent size to the new RAH to occur in a phased approach that includes a mixture of electronic and paper clinical documentation. Most interstate deployments of electronic medical records have a smaller clinical footprint than EPAS, meaning that they continue to function in an ongoing environment of mixed electronic/paper clinical records.

This represents a clinical and logistical challenge that has been faced and addressed many times elsewhere. SA Health is leveraging the experience of several interstate experts with previous experience in this area and they are leading projects to address the risks raised in the audit report. It is an area of significant focus for the new RAH and EPAS Programs.

Audit Recommendation

- The new RAH Program continue conducting the clinical consultation required to progress agreed workflows relating to the storage and delivery of the historical medical records for initial operation at the new RAH.
- The new RAH Program ensure priority is also placed on confirming the storage and delivery services required for initial operation at the new RAH, including the use of the existing RAH Medical Records Department.
- The Program actively consult with the new RAH Program and CALHN regarding the risk of conflicting information between historical paper records and information stored in EPAS, such as the migration of allergies and intolerances, refer to section 5.9.

Response to Recommendation

- SA Health agrees with the recommendations. The recommendations reflect current focus and action within both the new RAH and EPAS Programs. SA Health will continue to progress these actions and examples are provided below for information.
- A draft supply and retrieval process map for the supply of the medical record to the new RAH has been developed to support consultation with clinical groups. Consultation with key leadership positions within the clinical groups has commenced and has included leadership positions and clinicians from the Emergency Department, Outpatients, Allied Health, Renal, Surgery, Cancer, Critical Care, Imaging, and Mental Health. Further consultation is planned for Medical and Research which is planned for completion in June 2016.
- Specific adaptions to the supply and delivery model of the medical records have been made in order to meet the requirements of the different clinical areas.

- Broader consultation with all clinicians will be supported through the presentation of the consultation paper to the CALHN Industrial Liaison Forum.
- The retention of the Medical Records Department on the current site is planned for nine months post move to the new hospital.

5.12 Problems with periphery devices to access the EPAS system

Audit Recommendation

- The new RAH Program ensure the timely procurement and delivery of alternate bedside monitor solutions and allocate sufficient resources to configure, test (including usability) and deploy the new solution at the new RAH.

Response to Recommendation

- A contract has been executed for the procurement of a new bedside monitor solution for the new RAH. The delivery of the bedside monitor solution, along with the configuring, testing and deployment of the solution at the new RAH is on track and being managed by the new RAH ICT Program.

6.1 EPAS rollout approach and site budget estimates to complete the remaining in-scope sites following the new RAH remains unclear

The EPAS Program maintains detailed estimates of costs to support implementation efforts, based on experience to date, which are projected through the completion of activation at all in-scope sites out to January 2019 and for system operations through to the end of the 10 year total cost of ownership period in 2021. These estimates are updated when detailed resource planning is conducted for each site. The order of sites is subject to Cabinet approval and will ultimately be determined by a range of factors, not least of which will include the Transforming Health Program.

Audit Recommendation

- The Program ensure that it completes the planned high level rollout schedule in a timely manner. At a minimum, the Program allocate cost estimates of the general activities required to implement the EPAS solution into each remaining site and track these cost estimates within the original approved budget.
- The Program communicate its planned rollout activities with the LHNs to allow for timely budget planning and resource allocation to facilitate the implementation.

Response to Recommendation

- There is a detailed budget for the EPAS Program extending out to June 2021 and the results of which are included in Cabinet Submissions and actively monitored by the EPAS Program Board.
- Detailed Budget estimates for the implementation phases of the Program are maintained based on detailed estimates of staff numbers, infrastructure requirements, vendor requirements and goods and services requirements. These estimates are based on experience to date in implementing EPAS, including the current experience in implementing EPAS into the TQEH.
- Estimates to date for implementation at TQEH, a major site, show the Program is operating below SA Health's cost estimates, signalling the potential to improve the Program's financial position as it continues to other sites.
- Budget estimates for future sites will be updated as more detailed resource planning is conducted for each future site. This resource planning will give better indications of the specific timetable and resource profile required for each site.
- Planned rollout activities will be communicated to LHNs to allow for timely planning and resource allocation, as has been SA Health's practice. In addition to extensive executive

stakeholder engagement within LHN's, the LHN Chief Executive Officer for the next site to be activated is invited to become a member of the EPAS Program Board.

6.2 Improvements required to strengthen monitoring of formal benefits realisation planning, tracking and reporting

The benefits profile of the Program has changed since the business case was approved. Some of this relates to the timing of benefits due to the current timeline compared to the original business case. In other instances some of the original assumptions have not been held to be true and so those benefits will not be realised.

It is acknowledged that improvements can be made in benefit tracking and reporting.

Audit Recommendation

- As noted in section 5.5, SA Health perform a review of the expected benefits realisation, in particular the functionality being delivered against the scope specified in the original business case.
- The Program develop a revised benefits realisation plan which identifies how these benefits and offsets will be realised.
- Any further benefits realisation updates should be included in an update to Cabinet to satisfy their requests on the costs and benefits of the Program as a whole.

Response to Recommendation

- An EPAS Program Board Financial Report is provided to the EPAS Program Board and the eHealth Steering Committee on a monthly basis. This report contains a section on the benefits realisation. This is discussed further in SA Health's comments relating to the implications in section 4.2 earlier in this response.
- The benefits realisation plan will be revised following the next stages of planning of the Program and an update provided to Cabinet. The benefit profile will be reviewed as part of this activity.
- SA Health will implement a renewed focus on benefit tracking and realisation.

6.3 Need to update the documented and communicated systems design methodology

Audit Recommendation

- The Program formally document the amended system design methodology adopted and communicate the agreed approach with all program resources.

Response to Recommendation

- The EPAS Program will improve the documentation of its system design methodology and communicate this with appropriate Program team resources.

6.4 Lack of a formal complete registry of EPAS software escrow deposits

Audit Recommendation

- SA Health proactively monitor EPAS software updates and new release deposits, including all major software updates through the use of an appropriate register.

Response to Recommendation

- SA Health will continue to actively monitor EPAS software updates and new release deposits, including all major software updates. SA Health will create an appropriate register to assist with this monitoring task.

6.5 User segregation of duties could be strengthened and change control exceptions exist

Audit Recommendation

- The Program revisit the samples highlighted above and consider any other accounts with the potential to adversely impact the change management process and make appropriate alterations.
- The Program consider refreshing the UAT environment to reflect the current Production environment on a more frequent basis.

Response to Recommendation

- The EPAS Program has a strict change management process controlling all environments. Each environment has an owner and approvals are required by that owner before any change is permitted to be made in that environment. The EPAS Program dedicates 2 staff resources to monitor and control this process.
- There is a weekly release meeting where all EPAS Program Board approved changes are discussed, planned and reviewed. The Release Manager ensures all approvals are obtained prior to a change progressing to Pre-Production and Production.
- As part of change management and migration of changes across environments, EPAS has a process for peer review and validation by subject matter experts to ensure technical and functional compliance have been met.
- To mitigate the risk of having a change made incorrectly in Production, the EPAS Program uses the same clinical analyst to perform the change in Pre-Production and Production.
- There are multiple activation projects occurring concurrently (i.e. TQEH and new RAH) with each needing to test new functions at different and sometimes overlapping times. Practical management of the User Acceptance Testing (UAT) environment to juggle the needs of these parallel activities means, out of necessity, it is not kept regularly in sync with the Production environment. Final testing occurs in Pre-Production which is regularly refreshed (approximately every 3 months) from Production.
- SA Health intends to revisit the organisation structure of the EPAS Program team after implementation at TQEH. After the TQEH has been activated, critical mass will have been achieved in the operational user base, therefore SA Health will consider moving support activities into the business-as-usual support structures of eHealth Systems. This will provide further separation controls for movement of objects between Development, Test, and Production environments.