RECOMMENDATIONS FROM EXTERNAL REVIEWS

Leading Data Reform: The Way Forward – Outcomes of the ACT Health System-Wide Data Review.

RECOMMENDATIONS FROM EXTERNAL REVIEWS

An independent, specialist external auditor was engaged by ACT Health to conduct a progressive assessment of the effectiveness of progress made against the implementation of the 175 recommendations over the System-Wide Data Review period. The final status (as at 31 March 2018) of the progress of the recommendations is included in the table below.

Rec. #	External Report	Recommendation	Domain	Progress as at 31 March 2018
1	PwC 2016	Design, develop and implement **Data Management and Governance Framework** for ACT Health.	Data governance	Ongoing
2	PwC 2016	Embed a **Data Management and Governance Framework**, that should include at least: a) defining the ownership and accountabilities for data and reporting. This should include appointing an individual with the key accountability for the definition and oversight for data and information governance; b) building and implementing the data management and governance model supporting the data owner(s); c) defining the data quality requirements of all stakeholders reliant on Performance, Reporting and Data function reporting (previously Business Performance Information Decision Support (BPIDS)); and d) performing ongoing quality assurance and testing of the data warehouse. This should include ensuring that changes to business processes can be identified to understand the impact on data holdings and underlying calculations.	Data governance	Ongoing
3	ACT Assembly Standing Committee 2015	The Committee recommends that robust **data validation** processes be established for the Canberra Hospital and that the Government of the day report to the ACT Legislative Assembly on the first sitting day of 2013 on their implementation.	Data governance	Ongoing
4	ACT Auditor-General 2015	**Validation Processes**: The Health Directorate should develop and implement overarching policies and procedures related to data validation processes and activities. These should provide a consistent framework that is flexible and adaptable when needed to reflect local processes and organisation structure.	Data governance	Ongoing
5	Marshall 2013-2015	**Principles and conditions of data access**: that the governance arrangements for Health Directorate data holdings should include a statement of high level principles and general rules that apply to all data holdings.	Data governance	Underway
6	Reid 2012	There should be a Directorate wide suite of **Standards, Standard Operating Procedures and Training modules** required to be adopted for all data management.	Data governance	Underway
7	Reid 2012	The ED P&I Branch should be included in the list of **data custodians** within various legislative and data policy documents.	Data governance	Underway
8	Reid 2012	Information management issues should be a regular agenda item for discussions by the **ICT Management Committee**. The Terms of Reference and membership of this committee will need to be reviewed in light of this broadened scope.	Data governance	Completed

Rec. #	External Report	Recommendation	Domain	Progress as at 31 March 2018
9	Reid 2012	As a general rule, **Data Managers and Business Information Managers** should be employed as **out-posted** officers of the P&I Branch.	Workforce	No longer relevant
10	Reid 2012	There should be a regular **newsletter** from P&I Branch to interested people within the Directorate on initiatives in information management with a particular focus on implementation of **Activity Based Funding.**	Change management	Underway
11	PwC 2016	**Develop and implement a formal Change Control Process** for amendments to the Report (Annual and Quarterly Performance Reports), including: a) Change Request Template to capture changes requested; and b) Change Request Register to capture date and origin of change requested.	Change management	Underway
12	PwC 2016	Develop **Governance Assurance Framework** for BPIDS Reporting Function.	Data governance	Underway
13	PwC 2016	Develop **Implementation Plan for the Governance Assurance Framewor**k for BPIDS Reporting Function. (This will incorporate the 'Reporting Program of Work' mapping activity).	Data governance	Underway
14	PwC 2016	**Reporting Program of Work** – mapping of the reporting environment (source to reports to stakeholders) and development of a 'risk heat map' based on current known issues with report processes (including SQL and Extract Load Transform errors).	Information and insights	Underway
15	PwC 2016	Develop **procedural documentation** for the end-to-end report creation process, including clear roles and responsibilities in alignment to the requirements definitions. Develop a **formal approvals process** for provisioning access to subscription reporting, in particular for those which report sensitive data. Develop a **periodic review process** for automated routine reporting, which re-assesses design appropriateness against requirements definitions, identifies any updates to content required due to organisational changes or similar, and considers reports that are no longer required and can be decommissioned.	Data governance	Underway
16	PwC 2016	Develop and implement a formal **Change Control Process** applicable to the provisioned reports and associated SQL/business logic.	Change management	Underway
17	PwC 2016	Undertake full review of BPIDS response to **Auditor-General Recommendations.**	Data governance	Completed
18	ACT Auditor-General 2015	**Change Management:** As the Health Directorate implements its Information Management Strategy 2015-2016, change management activities should include: a) training Health Directorate and hospital staff to ensure they have an adequate understanding of the Strategy and specifically data integrity activities; and b) documenting and allocating responsibility for data integrity activities for the key systems, including ACT PAS, EDIS and the Health Directorate data warehouse.	Change management	Completed

Rec. #	External Report	Recommendation	Domain	Progress as at 31 March 2018
19	ACT Assembly Standing Committee 2015	The Committee recommends that the Government of the day detail to the ACT Legislative Assembly, at the earliest possible opportunity, what action the Health Directorate has taken to assess whether a prevailing organisational culture at the Canberra Hospital contributed to the circumstances surrounding the alteration and misreporting of performance information.	Data governance	Completed
20	ACT Assembly Standing Committee 2015	The Committee recommends that clear guidelines be established concerning **internal communication** between the ACT Health Directorate, the Canberra Hospital and Calvary Public Hospital.	Change management	Completed
21	ACT Assembly Standing Committee 2015	The Committee recommends that clear guidelines be established concerning **external communication** regarding matters concerning the ACT Health Directorate, the Canberra Hospital and Calvary Public Hospital.	Data governance	Completed

22	ACT Auditor-General 2012	The Health Directorate and Calvary Public Hospital should develop **essential EDIS governance documentation**, including:
		a) an overarching governance statement that describes:
		  i. the purpose and use of the system;
		  ii. its business owner, system administrator and all roles and responsibilities associated with the system and its support (including third party stakeholders such as Shared Services ICT);
		  iii. the security classification of the system and its data;
		  iv. applicable policy and administrative guidance;
		  v. record-keeping obligations;
		  vi. training requirements; and
		  vii. what is monitored and audited to ensure compliance with policy and supporting system documentation.
		b) standard operating procedures for all roles and responsibilities associated with the system and its use;
		c) training material that covers all dimensions of EDIS including user roles and responsibilities, processes described in standard operating procedures and specific policy that is applicable to the system; and
		d) a System Security Plan, which is informed by a risk assessment and risk management plan.
			Data governance	Completed

23	ACT Auditor-General 2012	The Health Directorate and Calvary Public Hospital should: a) **review the current distribution of access to EDIS** throughout the hospital and remove any users who do not have a specific and documented requirement for access to the system; and b) **develop policies, administrative procedures and system controls** (if possible) that restrict the use of generic user accounts outside the Emergency Department work environment.	Data security and privacy	Completed

Rec. #	External Report	Recommendation	Domain	Progress as at 31 March 2018
24	ACT Auditor-General 2012	The Health Directorate and Calvary Public Hospital should: a) identify and document responsibilities for **user access management and log monitoring** for **EDIS;** and b) develop a process to **monitor user activity within EDIS** and how to report and escalate unusual activity to the appropriate authorities.	Data security and privacy	Completed
25	ACT Auditor-General 2012	The Health Directorate should develop policy and administrative **guidance for EDIS data validation activities** for the two Canberra hospitals. The policy and administrative guidance should identify and document: a) agreed Emergency Department actions which constitute 'clock starting' and 'clock stopping' moments for the purpose of EDIS timeliness records; and b) protocols for data validation activities in the day(s) following a patient's presentation to the Emergency Department.	Data governance	Completed
26	ACT Auditor-General 2012	The Health Directorate should implement additional review and **assurance** controls over the preparation and reporting of **Emergency Department timeliness performance informatio**n. These review and assurance controls should address both Canberra Hospital and Calvary Public Hospital performance information. The Health Directorate should consider whether the additional review and assurance controls should be applied to other performance information.	Data quality	Completed
27	ACT Auditor-General 2015	**Patient Record Close Period:** a) Calvary Public Hospital should align its EDIS record close period (i.e. the period after which records are locked) with that of Canberra Hospital. b) The Health Directorate should undertake a monthly assessment to monitor changes to patient records after the close period.	Data quality	Completed
28	ACT Auditor-General 2015	**Training** Materials: Canberra Hospital should finalise its draft EDIS training documents and implement a mandatory requirement for staff to complete EDIS training before receiving access to the system.	Workforce	Completed
29	ACT Auditor-General 2015	**Reporting of Activity Based Funding Costing Data:** The Health Directorate should develop and publish a costing framework which: a) allocates roles and responsibilities between the Health Directorate and hospitals; b) specifies a firm schedule for hospitals to submit costings; c) incorporates a costing data specification; d) outlines a costing review and validation process; and e) includes an urgent issue escalation process.	Information and insights	Completed
30	ACT Auditor-General 2015	**Clinical Coding:** Canberra Hospital and Calvary Public Hospital should improve their clinical coding with the following process changes. a) Where coding is completed before the availability of the discharge summary, the medical record should be flagged, to facilitate subsequent identification of potentially incorrectly coded episodes. b) Where the discharge summary directly conflicts with information in the record, a query should be forwarded to the treating clinician for clarification. These queries should be followed-up and documented for future reference.	Data quality	Completed
31	Marshall 2013-2015	**Registers be established and maintained of reports issued and data holdings** maintained and that these registers be developed as the key control mechanism for the report release authorisation and recording process.	Data governance	Completed

Rec. #	External Report	Recommendation	Domain	Progress as at 31 March 2018
32	PwC 2016	Develop and agree **requirements definitions for automated routine reports.** This is to include identification of a relevant business report owner.	Information and insights	Underway
33	Marshall 2013-2015	**A record of reports issued and data sources:** that a register of statistical and management reports (Register of Reporting (RoR)) be prepared and maintained by P&I Branch from monthly returns from each of the areas using and analysing data.	Data governance	Completed
34	Marshall 2013-2015	**Operational information systems that generate data and reports:** that the example list of source systems and data holdings be replaced by a systematically maintained Register of Operational Data Stores. This should be then used as a standard reference point to identify source data used in reports and data extract cover sheets.	Data governance	Underway
35	Marshall 2013-2015	**Data custodians and recording of data releases:** that a responsible custodian is identified for each data holding – and levels of delegation for release specified in the Register of Reporting.	Data governance	Underway
36	Marshall 2013-2015	**Data custodians and recording of data releases:** that a specified subject matter expert is identified for each data holding who has a defined role in its management.	Data governance	Underway
37	Marshall 2013-2015	**Data custodians and recording of data releases:** that an auditable register be maintained of standards applicable to each data holding – dates of implementation and updates to the standards. These standards and policies should include metadata specifications, release policies and procedures, access policies and register, security arrangements and audit documentation.	Data governance	Underway
38	Marshall 2013-2015	**Data custodians and recording of data releases:** that each data holding is classified according to its level of access and level and category of risk.	Data governance	Underway
39	Marshall 2013-2015	**Report credentialing and conditions of release:** that the Register of Reports also identify the responsible data custodian by position for each of the datasets and link to standard documentation of standard conditions of release of the dataset, subsets or reports.	Data governance	Underway
40	Marshall 2013-2015	**Data audit status and metadata standards:** that for each of the systems in the Register of Reports, the audit status of system access and the security of record change history system functions and supervision be identified and updated when audit actions are scheduled and completed.	Data governance	Underway
41	Marshall 2013-2015	**Identification of report authorship and underpinning data status:** that the register record responsible management points from source to analytical output for each periodic report.	Data governance	Underway
42	Reid 2012	A register of all Directorate **external data provision** should be developed and maintained.	Data governance	Completed
43	Marshall 2013-2015	**Office of Data Integrity** be established and supported by direct report senior executive on progress with implementation of the recommended building blocks and provide a focal point for receiving and follow up of data integrity concerns.	Data quality	No longer relevant
44	Marshall 2013-2015	**The Office of Data Integrity:** that the Data Integrity Adviser position be staffed as soon as possible and the Office of Data Integrity be tasked with the priority function of delivering a three year external audit program as well as ongoing responsibility for risk assessment and support for professionalism in health information management and data recording in particular.	Data quality	No longer relevant
45	Marshall 2013-2015	**The Office of Data Integrity:** that the Data Integrity Adviser be asked to report annually on progress with implementation of those elements of this Data Integrity Strategy that are agreed by the Health Directorate Executive.	Data quality	No longer relevant

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46	Marshall 2013-2015	**Health information professionalism:** that on recruitment to data management and analysis positions, qualifications and/or practical experience should be sought according to role in skills areas such as: (a) health informatics, (b) health information system analysis (c) health information management (d) epidemiology, (e) health econometrics, (f) health statistics, (g) Casemix/ABF, (h) health classifications, (i) clinical costing.	Workforce	Ongoing
47	Marshall 2013-2015	**Health information professionalism:** that current staff should be encouraged and facilitated in attending continuing professional education forums – extension courses symposia and conferences in the above fields.	Workforce	Ongoing
48	Reid 2012	An assessment of the skills and competencies of people involved in data management and dissemination should be undertaken. Targeted education and training should be provided to accommodate identified skills deficiencies.	Data management	Ongoing
49	Marshall 2013-2015	**Data qualifications and disclaimers:** that the data qualification categories listed in IHPA's Data Integrity Framework be incorporated by the ACT Health Directorate into the RoR notations at least in the early stages of IHPA reporting routines. Once these thresholds become historic, finer thresholds for qualification and disclaimers that identify confidence levels in data precision and rigor would and should almost certainly be introduced.	Data quality	No longer relevant
50	PwC 2016	Create a **data management strategy and roadmap**. This document should define responsibilities for data management, information management and reporting. It should reflect the current state and desired state architectures and provide a roadmap (and a budget) to facilitate the required improvement in maturity. The strategy should define the role of source systems, reporting databases and the data warehouse, and should define the high level business requirements and metrics proposed to assess the strategy's implementation.	Data management	Underway
51	PwC 2016	Define the **architecture** to support development of a roadmap that can prioritise what reporting is performed and the systems required. This will require maturing any existing Enterprise Architecture (EA) documentation, which should include the business architecture, technical architecture, data architecture and application architecture. This will also require management agreement of the desired end state for data management and reporting (that should consider both benefits and costs).	Information and insights	Underway
52	ACT Auditor-General 2015	**Non-Admitted Patient Data and Systems:** The Health Directorate should implement a single patient management system, and standardise data management policies and procedures, across all public outpatient clinics.	Data management	Underway
53	ACT Auditor-General 2012	The Health Directorate should: a) review the current EDIS upgrade project and link it with current Health Directorate Identity and Access Management and Rapid Sign-On initiatives that are currently underway, to allow staff to be individually accountable for their actions; and b) review all available Emergency Department software to evaluate whether or not the current EDIS should be replaced with one that has strong confidentiality and integrity controls as well as appropriate process linkages.	Data management	Underway
54	ACT Assembly Standing Committee 2015	The Committee recommends that, consistent with the recommendation of the Auditor-General, the **rapid sign-on system** be implemented as soon as practicable and that the Government of the day report to the ACT Legislative Assembly at the earliest opportunity on its implementation.	Data management	Completed

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55	Marshall 2013-2015	**Data repositories:** that the concept of a 'one source of truth' data repository for management data access be clarified in terms of: a) data holdings design: particularly extraction and transformation points and points at which automated and manual coding, ETL, storage, processing and aggregation occur. b) data provenance: particularly the level of detail summarisation at each stage of case or unit of activity bundling and classification; c) development of reporting requirements and level of data abstraction; d) capacity and data quality assurance protocols for reconciling and replicating important counts and measures with original source records in operational and business systems; e) audit requirements and audit plans for reports and data extracts against source records or other evidence f) mapping of historical data to current dataset versions to permit longitudinal comparative analysis.	Data management	Underway
56	Reid 2012	The timeframe and scope of **data inputs to the data repository** needs urgent clarification.	Data management	Underway
57	PwC 2016	Develop new **data warehouse.**	Data management	Underway
58	PWC 2016	**Design and build the data warehouse**, which should include: a) understanding the range of existing source information systems (and supporting source databases) and agreed sources of truth for each data type; b) defining the detailed business reporting requirements of each branch, including the level of business intelligence and analytics required; c) defining the detailed business reporting requirements of each branch, including the level of business intelligence and analytics required; d) designing a data model aligned to the data architecture and agreed naming conventions; e) creating a technical design that incorporates the platform, capacity and performance requirements, indexation, user access, change management etc.; f) defining the required data transformation services, including ETL from source systems; g) testing the build to ensure business logic is correctly applied when reporting from the warehouse. This will require the design and test teams having access to key business process documentation for source systems (including EDIS and ACTPAS) to define and review business logic in place. Ensure changes to business processes can be identified to understand the impact on data holdings and underlying calculations; and h) decommissioning of existing data warehouse databases that will no longer be required.	Data management	Underway
59	PWC 2016	Consider introducing new technologies.	Data management	Completed

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60	PWC 2016	Undertake an assessment of the application of emerging data technologies for ACT Health. For example, **data virtualisation tools** would allow dynamic usage of data from multiple source systems for ad-hoc reporting. This would allow limiting the data warehouse to key required fields, and additional fields only used occasionally would not need to be stored in the data warehouse. A separate category of data management tool covers data visualisation. ACT Health are not currently leveraging these tools for most reports, which could improve the efficiency of report generation and the impact that reports have on different stakeholders.	Data management	Ongoing
61	Marshall 2013-2015	**Help desks:** that within CIOs Branch, a help desk be set up for ICT systems operation queries. In particular the functions of the SSICT help desk should be reviewed in relation to the IM help desk to ensure there are no gaps. The core functions of the system help desk should include; a) system components operation (system performance review, system development and integration, system provider management – including shared services) b) system access registration and c) system login tracking security monitoring and d) system access audits.	Communication	Completed
62	ACT Auditor-General 2015	**Audit Logs:** Both Canberra Hospital and Calvary Public Hospital should establish useable audit logs for EDIS to allow monitoring activities after the close off period. The audit logs should be reviewed regularly, with results presented to the accountable hospital executives and to the Health Directorate.	Data quality	Underway
63	Marshall 2013-2015	**Principles and conditions of data access:** that general rules and specific rules for particular data holdings be: a) readily available to users and b) linked to the system access points c) acknowledged by users at the point of use as part of the access procedure. (In the same way as conditions of issue of airline tickets – or acknowledgement of license conditions before loading software).	Data security and privacy	Completed
64	Marshall 2013-2015	**Principles and conditions of data access:** that the eHealth strategy provisions for data holdings management be expanded and promulgated to staff both as: a) general topic manuals with rules applicable across all data holdings and b) specific purpose documents associated with each data holding.	Data management	Underway
65	Marshall 2013-2015	**Principles and conditions of data access:** that changes in the specification, standards or provisions of access to any data holding be: a) promulgated to registered users b) listed in a running bulletin at a central web location c) maintained in documentation associated with the data holding.	Data security and privacy	Underway
66	Marshall 2013-2015	**Data systems security management:** that system access profiles be developed for each staff category and clinical role where use of records systems is required. That system logons be refined to facilitate access for authorised personnel and restrict access to unauthorised personnel.	Data security and privacy	Completed

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67	Marshall 2013-2015	**Data system security management:** that a register of (people) authorised to access data holdings in the systems be established for each operational system and level of access for each authorised person be specified – role, data entry – data correction –and data deletion.	Data security and privacy	Completed
68	Marshall 2013-2015	**Data system security management:** that for all databases, a system be enabled to log and register: a) history of database access and b) history of record search, record extraction, record entry, record completion and record change action and reasons for change.	Data security and privacy	Underway
69	Marshall 2013-2015	**Data system security management:** that for data entry and system management staff similar logon authorisation management and data access logs be maintained as for other system users be maintained.	Data security and privacy	Completed
70	ACT Assembly Standing Committee 2015	The Committee recommends that the Government of the day review the security of information which identifies individual patients at the Canberra Hospital and report on the outcomes of this review to the ACT Legislative Assembly on the first sitting day of 2013.	Data security and privacy	Completed
71	ACT Assembly Standing Committee 2015	The Committee recommends that all ACT Government directorates and agencies should prioritise as a matter of urgency an **assessment of the adequacy of controls over their respective IT systems** and applications. This should include consideration of the controls that affect the reliability of all IT systems and applications (general controls) and controls that are specific to each application (application controls).	Data security and privacy	Completed
72	ACT Assembly Standing Committee 2015	The Committee recommends that the Commissioner for Public Administration, in consultation with ACT Government directorates and agencies, develop a whole-of-government **policy** for the management of **private information** relating to ACT Public Service employees and recipients of ACT Government services.	Data security and privacy	No longer relevant
73	Marshall 2013-2015	**Principles and conditions of data access:** that a program of review of data access arrangements be developed so that each data holding is covered at least once each year or according to risk rating.	Data security and privacy	Completed
74	PWC 2016	Review and update access controls to Shared Network Drive for PI (Report Template) and DSS (Report Proof).	Data security and privacy	Completed
75	PWC 2016	Apply access controls to the SQL query and the Excel file used to populate the Surgeon Wait Times public report.	Data security and privacy	No longer relevant
76	PWC 2016	Reduce levels of 'write' access to report files (.rdl files), to include only the data team who actively manage the reports.	Data security and privacy	Underway
77	PWC 2016	Apply PwC's SQL fixes to **MORBID** and continue to use MORBID.	Data management	No longer relevant
78	PWC 2016	Apply PwC's SQL fixes to **MORBID** and continue to use MORBID in the short term for external reporting.	Data management	No longer relevant

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79	Marshall 2013-2015	**Data system security management:** that regular audits of access be conducted and unusual patterns of access – particularly systematic record change be reviewed and/or investigated.	Data security and privacy	Ongoing
80	Marshall 2013-2015	**Data access management:** that access registers be analysed on a regular basis to identify systematic patterns of access to data records for change or update.	Data security and privacy	Completed
81	Marshall 2013-2015	**Data access management**: that annual audit programs include a review of access registers and investigation of atypical systematic access patterns.	Data security and privacy	Ongoing
82	Marshall 2013-2015	**Training in values and best practice in data security:** that data entry and data review staff be trained in the ethics of data security.	Workforce	Ongoing
83	Marshall 2013-2015	Training in values and best practice in data security: that data entry and data review staff are provided on a regular basis with feedback for their checking and confirmation on: a) Patterns of data access with reasons. b) Results of data validation and QA on the data that they have entered or accessed for further action. The purposes for this include ensuring that all staff can be held responsible for their own logons and that possible false logons are identified quickly.	Workforce	Completed
84	Marshall 2013-2015	**Training in values and best practice in data security:** that staff with discrepant levels of validation or edit queries be provided with further training or guidance.	Workforce	Completed
85	ACT Auditor-General 2012	The Director-General of the Health Directorate and the ACTPS Head of Service note the findings of this report (ACT Auditor-General's Report No. 6/2012: Emergency Department Performance Information) with respect to the executive who has admitted to manipulating hospital records, and consider whether this executive has engaged in misconduct in breach of section 9 of the Public Sector Management Act 1994 and their executive contract.	Data governance	Completed
86	ACT Auditor-General 2012	The Health Directorate reinforce to Health Directorate employees, especially executive staff, the need to act with integrity with respect to the maintenance of health records and associated data.	Data quality	Completed
87	ACT Assembly Standing Committee 2015	The Committee recommends that, given the Health Directorate's failure to protect the privacy of the Executive who admitted to altering data—prior to any civil, criminal or administrative proceedings—the Health Directorate should: (i) issue a public apology to the individual concerned; and (ii) take appropriate steps to acknowledge the individual's contributions to the operation and administration of the Canberra Hospital.	Data governance	Completed
88	Marshall 2013-2015	**Data access management:** that as staff leave positions or move from role to role, access authorisations be automatically removed and reinstated as appropriate.	Data security and privacy	No longer relevant
89	PWC 2016	Undertake a full Data Warehouse reconciliation and **integrity validation check against source systems**. This will include business and technical confirmation of data alignment.	Data management	Underway
90	PWC 2016	Identify appropriate additional resource/s who will require 'run' access to support current single resource for CHARM.	Data management	Completed

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91	Marshall 2013-2015	**Operational information systems that generate data and reports:** that system development plans for any business system component include a comprehensive schedule of interfaces and tabulation of the interface metadata references and particulars.	Data management	Completed
92	ACT Auditor-General 2015	**Define Activity Based Funding Related Data Mapping:** Health Directorate should develop an Emergency Department Data Dictionary to standardise the definition of ABF-related data and define ABF-related data mapping from EDIS in both hospitals to the data warehouse.	Metadata management	No longer relevant
93	ACT Auditor-General 2015	**Risk Based Approach to Investigations:** As a priority, the Health Directorate should review the mapping processes used to extract data from EDIS to the data warehouse, and ensure that Admitted Patient principal diagnosis and Emergency Department type of visit are mapped appropriately.	Data management	Underway
94	Marshall 2013-2015	**Operational information systems that generate data and reports:** that mapping tables used at each interface between business system components be maintained in a register that links to the metadata data registry standards for each end of the map so that each time the standards are revised the interfaces to be updated will be identified and flagged.	Data management	Underway
95	Marshall 2013-2015	**A record of reports issued and data sources:** that each six months, a regular stock of data holdings take be conducted by web portal with data analysts/data managers. By area of data system operation/function and also a sample of key data users/dataset holders who create reports and secondary datasets. The surveys would ask four sets of questions outlined below, for six-monthly updates for the register of data reports and data holdings including: a) What reports and data release provision are you responsible for? To whom? For what purpose? b) Who/what is the official point/authority for release of the reports/datasets? Date of releases in past six months – Date of next scheduled/expected release. c) What are the data sources for the reports/data releases? Source records? Compiled datasets? Working datasets? – Date of releases in past six months – Date of next scheduled/expected release. d) What data holdings do you maintain? How are they stored? Who has access? Under what conditions? What records are there of data release? What is the audit trail from final reports to source records for the data used? – a. Standards and protocols? – b. Compliance assurance/audits? – c. Date of next scheduled audit or review? To minimise repetition, the survey forms can be prepopulated with answers from the previous returns and only require confirmation updating that ideally would be done dynamically as reports and datasets are authorised for release. The survey that would then function as a follow up check and periodic stock take mechanism. Prepopulation could include: a) Reporting obligation under which report was prepared b) Purpose of the report c) Key users of the report d) Data sources and working datasets from which report compiled.	Information and insights	Completed

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96	Marshall 2013-2015	**A record of reports issued and data sources:** that this register be published via intranet web page in sections with hyper-links or references that identify those reports and data which are for: a) public access by sale, publication, library or open internet lookup. b) limited public access by registration or fee by restricted access internet (e.g. registration and logon and conditions of access apply). c) ministerial and corporate access by intranet only.	Data governance	Underway
97	Marshall 2013-2015	**A record of reports issued and data sources:** that for each of the reports issued, archive copies of the report be stored in PDF or similar protected document form in an archive repository with folders numbered in a logical order based on the Register of Reports' indexing arrangement.	Information and insights	Completed
98	Marshall 2013-2015	**A record of reports issued and data sources:** that data holdings required for replication of key registered reports be indexed and archived in retrievable data storage arrangements as at the date used.	Information and insights	Completed
99	Marshall 2013-2015	**Identification of report authorship and underpinning data status:** that reports for Minister, Assembly or Public release have a registration point that documents source data and clearance point and data and version of databases used in their production.	Information and insights	Completed
100	Marshall 2013-2015	**Identification of report authorship and underpinning data status:** that information analysis reports should have footnote reports metadata that allows identification of source data and reference data and definitions used that match what would be recorded in the register for more formal analysis reports.	Information and insights	Completed
101	PWC 2016	Document **standards for ETL** and other code which produce the metric values reported on the public website or Portal. (This should also include a mapping of data sources through PIP or BIU staging tables back to source datasets, as well clear business logic and a linkage to national rules/standards where applicable).	Data management	Underway
102	PWC 2016	Identify and leverage existing eHealth data initiatives. Confirm ownership of patient index master data (PIM) and any other in-flight master data or metadata project. Assess their data quality and if or how the data warehouse should be integrating them.	Data management	Underway
103	ACT Auditor-General 2015	**Distribution of Validation Reports:** The Health Directorate should finalise its new business rules for data validation and incorporate these in its data warehouse, then re-commence the distribution of validation reports for the Non-admitted Patient areas at Canberra Hospital and Calvary Public Hospital and for the Calvary Public Hospital Emergency Department.	Data management	Underway
104	ACT Auditor-General 2015	**Tracking of Validation Activities:** The Health Directorate should review the capability of its data warehouse and develop robust processes to track the validation activities performed by the hospitals. It should also define and promulgate the business rules required in correcting Activity Based Funding related data to ensure consistency across hospitals.	Data management	Underway
105	ACT Auditor-General 2015	**Key Performance Indicators:** The Health Directorate should develop KPIs for the validation of data that can be supported by information from the data warehouse.	Data management	Underway
106	Marshall 2013-2015	**External audits of coding to activity datasets and conformance with costing standards** be programmed sequentially for completion within the next twelve months and then followed up with an annual program over a three year cycle. The key purpose and focus of these audits should be to support a culture of data quality and standards conformance.	Data quality	Underway

Rec. #	External Report	Recommendation	Domain	Progress as at 31 March 2018
107	Marshall 2013-2015	**Data falsification risk management:** that coding standards are to be applied and that professional ethics are reinforced relating to correct and even-handed application of coding standards and reports metadata definitions.	Data quality	Completed
108	Marshall 2013-2015	**Data falsification risk management:** that staff involved in the creation, edit and deletion of data are to manage data in an ethically appropriate manner.	Data quality	Ongoing
109	Marshall 2013-2015	**Data falsification risk management:** that feedback to data extraction and coding staff relate to variances from data standards.	Data quality	Ongoing
110	PWC 2016	Undertake a review and update where necessary, existing **Report metrics against National Standards** to improve comparability and align with better practice: a) Identify changes to the existing Report structure to present findings accurately and more meaningfully; and b) Amend, validate and sign-off Standards which may be updated to address any changes in the intent of the metric.	Information and insights	Underway
111	PWC 2016	Review and make determination on the inclusion of **'publications'** to be subjected to the formal '**Ministerial Process**' for publishing on the Government website.	Information and insights	Completed
112	PWC 2016	Identify Data Warehouse 'lockdown process' or 'snapshot date' for ongoing Quarter reporting purposes.	Data management	No longer relevant
113	PWC 2016	Apply name and date stamps to reports provisioned via email subscription that contain sensitive information, to reinforce that it is for the use of the recipient only, and not to be shared.	Information and insights	Underway
114	PWC 2016	Agree to a longer term strategy for delivering ED and ESWL reporting requirements. The 2016 PwC report recommends to define and prioritise ED and ESWL reporting requirements, build a new data warehouse for regular reporting and leverages data virtualisation for ad hoc reporting.	Information and insights	No longer relevant
115	PWC 2016	Agree short term remediations for ED and ESWL known issues.	Information and insights	No longer relevant
116	PWC 2016	**Operational reporting** (with the exception of live PIP and PIP NEAT reporting) should utilise management reporting from the source system (EDIS) and not from various data warehouse databases.	Information and insights	No longer relevant
117	PWC 2016	Operational reporting requirements are outstanding and will require consideration once available.	Information and insights	Completed
118	ACT Assembly Standing Committee 2015	The Committee recommends that the Government of the day should inform the ACT Legislative Assembly, at the earliest possible opportunity, if the emergency access targets under the National Partnership Agreement on Improving Public Hospital Services, will not be reached by the Canberra Hospital for the 2012 calendar year.	Information and insights	Completed

Rec. #	External Report	Recommendation	Domain	Progress as at 31 March 2018
119	ACT Assembly Standing Committee 2015	The Committee recommends that the Health Directorate in conjunction with Shared Services ICT ensure that appropriate **training** on every **IT related hospital system**, with a particular focus on the Emergency Department Information System (EDIS), is provided to all staff at the Canberra Hospital and Calvary Public Hospital.	Workforce	Completed
120	Marshall 2013-2015	**Help desks:** that, in accordance with the Reid/McKay report, within P&I Branch, a help desk function be maintained by data analysis staff (both local and out posted) and a log of queries recorded including: a) queries should be differentiated according to topic and referred to subject matter experts (SME)s – e.g. epidemiological, Activity Based Funding, health service performance, coding and reports metadata, data quality issues. b) SMEs should make sure that advice is logged so that common themes, standard practice issues and training material can lever convergence to common understanding and skill in data meaning (reports metadata) and quality. c) a running log/newsletter of queries and answers should be maintained on the website – particularly FAQs. d) access to help desk be provided to all staff to enable self-service and knowledge based capacity While not primarily the responsibility of a help desk, questions on the following areas can also be logged and the enquirers directed to appropriate subject matter experts or responsible functional areas by the helpdesk: a) data quality and integrity b) data analysis and interpretation c) data release – system interfacing – data transfers and extraction d) reporting outputs authorisation.	Communication	Underway
121	Marshall 2013-2015	**Training and support in use and interpretation of data:** that a user-friendly on-line library of training materials for data system users be developed or linked to the systems access register.	Workforce	Completed
122	Marshall 2013-2015	**Training and support in use and interpretation of data:** that principles of proper use of information should be defined as an organisation value and guideline. Questions that need to be addressed include: is this a values/moral/or purpose based concept? Is it the idea of how to best use systems for efficiently delivering correct observations? Is it the idea of ensuring that information selected for reporting is balanced relevant and reliable and not misleading? Is it a pragmatic construct based on creative selection of facts to achieve an agreed result?	Data governance	Underway
123	Marshall 2013-2015	**Training and support in use and interpretation of data:** that an index of training material be prepared, ideally web-based and linked to training material for online learning and reference.	Workforce	Completed
124	Marshall 2013-2015	**Training and support in use and interpretation of data:** that a training protocol be developed for each information system component and a register of expert users.	Workforce	Completed
125	Marshall 2013-2015	**Data falsification risk management:** that reinforcement from management be directed to timely and accurate reporting of hospital performance rather than favourable performance trends and a culture of emphasis on timely and accurate reporting of performance be reinforced.	Data quality	Ongoing

Rec. #	External Report	Recommendation	Domain	Progress as at 31 March 2018
126	Marshall 2013-2015	**Data falsification risk management:** that data and analytical staff be encouraged to quickly and collaboratively report early indications of variations from normal trends to business areas both for the purpose of checking data integrity and also for early management information feedback, and responds variance from data standards.	Information and insights	Completed
127	Reid 2012	Greater utilisation should progressively be made of medical records data extraction for **incident monitoring** rather than dependence on the RiskMan system information.	Information and insights	Underway
128	Reid 2012	The ED P&I Branch should work with each Division to improve **data analytics**.	Information and insights	Completed
129	Reid 2012	P&I Branch should review its **external liaison arrangements** with Divisions to improve engagement with EDs/Clinical Directors on enhancing data quality. As one practical suggestion, the Branch should be present at monthly Divisional meetings to discuss scorecard data. Similarly, the ED of the Branch should be present at that part of the Executive Council meeting which discusses the Directorate scorecard.	Data quality	Completed
130	Reid 2012	The Chief Health Officer should develop a proposal for **enhancing data linkages and improved performance measures** for Executive consideration, across the Directorate scorecards.	Information and insights	No longer relevant
131	Reid 2012	The ongoing improvements to Divisional **scorecards,** together with the introduction of the data repository and better data linkages provide opportunities to move from process measures to output and outcome measures and these should be exploited.	Information and insights	Completed
132	Reid 2012	Each Division should be provided with a monthly whole-of-hospital **scorecard** to better contextualise their Divisional performance.	Information and insights	Completed
133	Reid 2012	A workshop should be held across the Directorate and with relevant external stakeholders to review current priorities for data linkage initiatives within the ACT.	Information and insights	Completed
134	Marshall 2013-2015	**Metadata management and reference system** be established and maintained as the authoritative reference point for reporting data standards citation.	Metadata management	Underway
135	Marshall 2013-2015	**Data audit status and metadata standards:** that metadata and messaging interfaces between operational data systems (both business and clinical) and statistical/management information reporting data repositories be documented and audit trail requirements established.	Data management	Underway
136	Marshall 2013-2015	**Data audit status and metadata standards:** that metadata be identified at each system interface so that the attributes and concepts described in the variable definitions and value labels align and complex mappings are minimised.	Data management	Underway
137	Marshall 2013-2015	**Internal data audit and data quality assurance:** that the specification of data quality standards and requirements for central data collections be clearly assigned to the Data Standards Unit and associated with the reports metadata specification functions.	Metadata management	Underway
138	ACT Auditor-General 2015	**Guideline for the Non-Admitted patient Data Collection Process:** The Health Directorate should finalise and implement the Non-Admitted Patient Activity Data Standards - Data standards for the recording and counting of non-admitted patient activity.	Metadata management	Underway

Rec. #	External Report	Recommendation	Domain	Progress as at 31 March 2018
139	PWC 2016	**Infographics** a) Define the set of metrics to be reported in the infographics of the 2015-16 Annual Report. b) Only 7 of the 37 metrics are included in the main body of the Report. Suggest changing the infographics to use metrics from the body of the Report that are validated. c) Validate to source the 32 Non-Morbid data extractions.	Data quality	No longer relevant
140	PWC 2016	**Strategic Indicators – ACT Health:** a) Validate to source the 6 non-Morbid data extractions. **Metrics to be Validated:** a) Percentage of assessed emergency [dental] clients seen within 24 hours b) Immunisation rates for vaccines in the national schedule for the ACT indigenous population c) The Mean Number of Teeth with Dental Decay, Missing or Filled Teeth at Ages 6 and 12 (DMFT Index) d) Reduction in the Rate of Broken Hips (Fractured Neck of Femur) for those aged over 75 years (rate per 1000 people) e) Mean percentage of overnight hospital beds in use (total) f) Mean percentage of overnight hospital beds in use (by hospital).	Data quality	Underway

Rec. #	External Report	Recommendation	Domain	Progress as at 31 March 2018
141	PWC 2016	**Statement of Performance:** a) Validate to source the 14 non-Morbid data extractions. **Metrics to be Validated:** a) Mean waiting time for clients on the dental services waiting list b) % of the Women's Health Service Intake Officer's clients who receive an intake assessment service within 14 working days c) Proportion of detainees at the Alexander Maconochie Centre with a completed health assessment within 24 hours of detention d) Proportion of detainees at the Bimberi Youth Detention Centre with a completed health assessment within 24 hours of detention e) Justice Health services community contacts f) % of current clients on opioid treatment with management plans g) Alcohol & Drug Service community contacts h) Samples analysed i) Compliance of licensable, registrable and non licensable activities at the time of inspection j) Response time to environmental health hazards, communicable disease hazards relating to measles and meningococcal infections and food poisoning outbreaks is less than 24 hours k) Number of nursing (domiciliary and clinic based) occasions of service l) Number of allied health regional services (occasions of service) m) Proportion of clients attending 'Well Women's Check' within the Women's Health Service that are from culturally and linguistically diverse communities n) Proportion of children aged 0–14 who are entering substitute and kinship care within the ACT who attend to the Child at Risk Health Unit for a health and wellbeing screen.	Data quality	Underway
142	PWC 2016	**Strategic Indicators – Local Hospital Network:** a) Validate to source the 2 non-Morbid data extractions. **Metrics to be Validated:** a) The 2015-16 Estimated Hand Hygiene Rate b) Historical Hand Hygiene Rate	Data quality	No longer relevant
143	PWC 2016	Review the business logic of reported metrics aligns to the intent of the strategic indicator or reporting requirement.	Data quality	Underway
144	PWC 2016	**Our Workforce:** a) Validate to source the 11 non-Morbid data extractions **Metrics to be Validated:** a) All 11 tables in the Our Workforce section of the 2016 PWC report.	Data quality	Underway

Rec. #	External Report	Recommendation	Domain	Progress as at 31 March 2018
145	Marshall 2013-2015	**External data audit:** that a program of external audits be designed and commenced as soon as possible of the coding and MDS specification conformance of the key MDSs.	Data quality	Underway
146	Marshall 2013-2015	**External data audit:** that an external audit be commissioned to follow the coding audit of the costing data and conformance of the costing data to the NHCDC reporting standards. This audit should also be asked to report on fitness of costing data and system functionality for use of the costing reports for hospital operational management and feedback to clinical units on utilisation benchmarking.	Information and insights	Completed
147	Marshall 2013-2015	**External data audit: that a three year rolling audit program be developed and include:** a) Review of internal data quality assurance checks on compliance, completeness and accuracy of data entry for all data flows. These QA processes should be designed to provide: - systematic checking of highest risk variables at least once a year or more frequently according to risk rating – and - random sample checks of lower risk variables. - peer recoding checks and - statistical pattern analysis to identify atypical value distribution patterns by variable - reconciliation of counts against clinical unit throughput management statistics. b) Where atypical patterns are observed in internal recoding studies or statistical analysis, follow up should occur by:- - clinical review of observations against norms and advice on the face validity of the observed patterns - targeted recoding checks - data entry process inspection - notification to external audit for review where discrepancy remains unexplained or uncorrected. - external coding audit by recode of a random sample of coded records - statistical analysis of data patterns and - other matters that the auditors determine in discussion with the Health Directorate and ACT Government Audit.	Data quality	Underway
148	PWC 2016	**Provide QA oversight of the Quarterly Performance Report Q4 process.**	Data quality	Completed
149	PWC 2016	**Apply validation controls** to subscription reports that enables checking of content prior to distribution for completeness and accuracy.	Data quality	Completed
150	ACT Assembly Standing Committee 2015	The Committee recommends that the [ACT] Minister for Health make representations at the appropriate forums to progress the concept of a **regular national audit by the Commonwealth Auditor-General of health performance and data integrity** as it relates to Commonwealth agreements through the recently amended legislative provisions of the Commonwealth Auditor-General Act 1997.	Data governance	No longer relevant
151	ACT Assembly Standing Committee 2015	The Committee recommends that the Government of the day detail to the ACT Legislative Assembly, at the earliest possible opportunity, how it will address and improve issues about achievements against **throughput and triage targets as they relate to the Emergency Department** at the Canberra Hospital.	Data governance	Completed

Rec. #	External Report	Recommendation	Domain	Progress as at 31 March 2018
152	ACT Auditor-General 2015	**Outcome Measures:** Outcome measures for data quality (including data integrity metrics) should be developed and incorporated into the Health Directorate's Information Strategy 2015-2016. These should be monitored to assure the adequacy of data integrity, particularly for ABF-related data.	Data quality	Underway
153	ACT Auditor-General 2015	**Evaluation, Corrective Actions and Assurance:** The ACT Health Directorate's Information Management Strategy 2015-2016 should clearly articulate the following: a) key data integrity risks associated with ABF-related data and ACT Health Directorate's Independent Hospital Pricing Authority (IHPA) data submissions; and b) frequency and scope of controls assessments and other assurance activities that will be undertaken to provide assurance in relation to ABF data integrity. The Activity Based Funding data integrity risks and controls assessments above will need to be updated from year to year as IHPA's data submission requirements change.	Data governance	Underway
154	ACT Auditor-General 2015	**Risk Based Approach to Investigations:** The Health Directorate should undertake further investigation into the inconsistencies and anomalies identified by the data analytics, taking a risk-based approach to the investigation and focusing on the areas that have the potential to materially affect ABF data and funding.	Data quality	Completed
155	ACT Auditor-General 2012	The Health Directorate should review its performance indicators for publicly reporting the performance of Canberra's hospitals' emergency departments to include and give a greater emphasis to qualitative indicators relating to clinical care and patient outcomes.	Information and insights	Underway
156	ACT Auditor-General 2015	**Analytical Review of Reporting:** The Health Directorate should perform an analytical review to quality assure the six-monthly ABF data submission before it is sent to IHPA.	Data quality	Completed
157	ACT Auditor-General 2015	**Length of Stay, Overlapping Admissions and Type of Visit:** a) Canberra Hospital and Calvary Public Hospital should review patient records on a random and weekly basis with a focus on the fields that are included in Activity Based Funding reporting. b) Canberra Hospital and Calvary Public Hospital should conduct refresher training for Emergency Department clerical staff on how to appropriately classify the 'type of visit' for patients presenting to the Emergency Department.	Data quality	Completed
158	ACT Auditor-General 2015	**Non-Admitted Data and Systems:** The Health Directorate and Calvary Public Hospital should investigate the root causes of errors in Non-admitted patient data, including errors in the indigenous status, postcode and funding source fields in the source data and the IHPA submission and develop and implement policies and procedures for improvement.	Data quality	Underway
159	Marshall 2013-2015	Issue and implement the Data Quality Framework as a dataset editing and quality assurance framework and report quality-rating tool.	Data quality	Underway
160	Marshall 2013-2015	**Training in values and best practice in data security:** that ongoing, unresolved discrepant levels of validation edits be referred for specific audit review in the next data audit.	Data quality	Underway
161	Marshall 2013-2015	**Implementation of data quality framework:** that each dataset be documented in a register with a history of the data validation and data quality checks that have been applied in addition to the data quality report.	Data quality	Underway

Rec. #	External Report	Recommendation	Domain	Progress as at 31 March 2018
162	Marshall 2013-2015	**Implementation of data quality framework:** that the register entry for each dataset include source datasets from which it is extracted and reports metadata used for definitions of variables and value definitions in each variable.	Data quality	Underway
163	Marshall 2013-2015	**Implementation of data quality framework:** that each iteration of each dataset be recorded as cross-referenced a new entry in the register (and/or a clearly marked comment for each minor update).	Data quality	Underway
164	Marshall 2013-2015	**Internal data audit and data quality assurance:** that a clear role that needs to be operating with the Internal Audit Branch that interfaces with and integrates data quality assurance functions and operates as a dedicated Internal Data Audit program. This could be achieved by the role and scope of the current Data Quality Assurance unit be changed manage the internal information audit role and that it be renamed to reflect this function and interfaced in the planning and delivery of this.	Data quality	Underway
165	Marshall 2013-2015	**Internal data audit and data quality assurance:** that the role of the Central Data Repository currently in implementation absorb all core data set data edits and programmed data quality assurance functions for the central data repository and that they be automated within the ETL functions where possible.	Data management	Underway
166	ACT Assembly Standing Committee 2015	The Committee recommends that all ACT Government directorates and agencies should have effective **practices and processes in place to review all reports of the Auditor-General,** and to assess the relevance of the findings and recommendations to their agency, regardless of whether the agency was involved in a specific audit.	Data quality	Completed
167	Reid 2012	All data sets, which are provided externally, should be 'accredited' by the ED P&I Branch. This accreditation process should be designed to approve the data sources, standards and definitions.	Data management	Underway
168	Reid 2012	In undertaking this 'accreditation', the ED P&I Branch should assess the appropriateness of the continuation of the external provision of data by Divisions or whether alternative arrangements are proposed. It is expected there will be some circumstances where information, currently distributed within the Directorate and/or to the national agencies without the involvement of the P&I Branch, will need in future to be formally cleared through P&I Branch.	Data management	Completed
169	Reid 2012	Once the data sets are on the register, accredited and the arrangements are deemed appropriate, the data should continue to be provided by the relevant Division.	Data management	Completed
170	ACT Assembly Standing Committee 2015	The Committee recommends that the 8th ACT Legislative Assembly Standing Committee on Public Accounts should give due consideration to conducting an **inquiry into the process of future delivery of health care services across the Canberra Hospital and Calvary Public Hospital.**	Data governance	Completed
171	Reid 2012	More regular audits of clinical coding should be undertaken by the Health Directorate to highlight areas for quality improvement. This highlighted focus on accuracy of clinical coding is particularly critical leading up to the advent of Activity Based Funding.	Data quality	Ongoing
172	Reid 2012	Innovative tools to enable a more cost effective data capture be identified and evaluated by the ICT Management Committee.	Data management	Completed
173	Reid 2012	The **workload** of clinical coders' assessed and appropriate adjustments made to ensure the targets proposed for coding timelines are achieved.	Data quality	Completed

Rec. #	External Report	Recommendation	Domain	Progress as at 31 March 2018
174	ACT Auditor-General 2012	The Health Directorate should, in conjunction with Shared Services ICT, finalise the draft **Business System Support Agreement** between Shared Services ICT and the Health Directorate for EDIS.	Data management	No longer relevant
175	ACT Assembly Standing Committee 2015	The Committee recommends that the Minister for Health give consideration to finalising the Government submission to the Standing Committee on Public Accounts in response to Auditor-General's Report No. 6 of 2012: Emergency Department Performance Information earlier than three months after the report being tabled.	Data governance	No longer relevant