NHS Digital

Data Security Standard 5

Processes

The bigger picture and how the standard fits in

2021/22

Information and technology
for better health and care

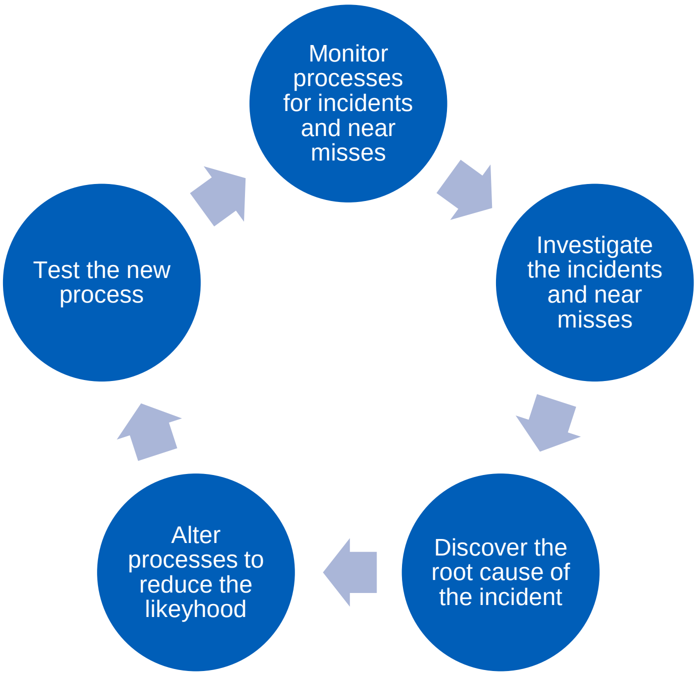
Contents

Overview

The NDG’s review data standard 5 states that:

“Processes are reviewed at least annually to identify and improve processes which have caused breaches or near misses, or which force staff to use workarounds which compromise data security.”

Past security breaches and near misses are recorded and used to inform periodic workshops to identify and manage problem processes. User representation is crucial. This should be a candid look at where high risk behaviours are most commonly seen, followed by actions to address these issues while not making life more painful for users (as pain will often be the root cause of an insecure workaround). If security feels like a hassle, it's not being done properly.


Monitor processes for incidents and near misses
Investigate the incidents and near misses
Discover the root cause of the incident
Alter processes to reduce the likeyhood
Test the new process

Processes

What are they?

‘Processes’ refer to the approved procedures which users are instructed to follow when performing business functions – either using technology, paper-based information, or a combination of the two (NDG Report Appendix 1).

Why do we do things this way?

Organisations within the care system have many processes within them. They exist for good reasons and to provide a consistent method of delivery. Some processes can however contribute to unsafe practises.

The NDG Review heard that in most cases, breaches or cyber-attacks are unwittingly facilitated by the behaviour of employees who can be classed as ‘non-malicious insiders’, primarily motivated to get their job done and often working with ineffective technologies or processes. In an evidence session held with providers, the Review heard examples of agency nursing staff being unable to access the system unless the permanent staff logged in and left the application open for the use of the agency staff. This avoidance of correct processes was the only way they could treat patients in a timely manner using the technologies available to them.

> “When processes are poorly designed or communicated, users will often revert to doing something in the most convenient way.”
>
> **NDG Data Security Standards Report**

The government response to the NDG Report states that *“The processes for accessing and using systems and data – both electronic and paper based – must be robust, secure and designed with end users in mind.”*

Small changes can make a big difference, simple changes involving people and processes are often more effective than implementing expensive technological solutions; high-value rather than high cost interventions.

What type of processes do we look at?

Each organisation will have its own local business processes and the NDG standard does not seek to mandate processes. However, there are a number of general examples of the type of processes that can be commonly attributed to incidents and workarounds.

New starters access rights

The ability of organisations to manage the creation of new staff accounts for access to systems in a timely fashion.

Temporary staff access rights

The ability of organisations to manage transitory staff members' (such as those on staff banks) access to systems in a timely fashion.

Revoking leavers access rights

The ability of organisations to disable / delete staff accounts who have left the organisation in a timely fashion. Particularly relevant for those staff with elevated rights to system(s).

Staff moving roles within an organisation

There can be a tendency for staff to accumulate more rights and roles when they internally move by not having their old roles (which are no longer required) revoked.

Storage and transfer of information

Storage and transferring of information securely and legally can be a challenge now that consumer cloud storage and sharing is simple and free. There are safe and secure alternatives such as NHSmail and secure file transfer but invariably these tend to be more complex. It is important to inform staff of the pitfalls of using their own storage and sharing for business related information and to provide an easily accessible alternative.

Internet access and blocking

Where an organisation has its own internet gateway, it is understood and supported that they should block malicious website and inappropriate content. However, content has to be viewed in the context of which roles are viewing it. Inflexibility and lack of granularity can lead to situations such as where pharmacies can't access drug sites, sexual health clinical staff can’t access appropriate sites and psychologists can’t access vulnerable service users’ postings.

Temporary staff access rights

The ability of organisations to manage temporary staff members (such as those on staff banks) access to systems in a timely fashion.

Initial boot and login times

Where initial boot and login times are (or even seem) excessive, this creates an environment where there could be a tendency for some of our colleagues to find work arounds.

Switching between users

When in a shared device environment, the ability to switch between multiple users both for the operating system and business application in a timely fashion.

Ratio of users to devices

Where you have a large number of users of a device (such as PC on a nurse station), this creates an environment where there could be a tendency for some of our colleagues to find work arounds.

Lockout times

Where there is (or a perceived) too narrow lockout threshold for operating systems and business applications. For example, it might not be clinically safe to have a clinical application PC in an operating theatre lock after a short number of minutes. Lockout times should be able to be granular and balance security and the operational requirements.

Locked down devices and business applications

Where devices and applications are locked down to such a degree that reasonable operations require intervention (from an IT team) on a regular basis. Such as changing where you print to or changing your display settings.

Common workarounds

Account sharing

This can be due to actual (or perceived) slowness in account creation particularly for temporary staff.

Accounts left logged in on shared devices

This can generally be attributed to a real (or perceived) slowness in switching users in both applications and operating systems.

Using a different application on the same device

Where one application is locked (such as Internet Explorer) using a different application (such as Chrome or Firefox) might yield different results.

Using an unauthorised device

This means using a device such as your own (which is not part of recognised Bring Your Own Device Initiative) to circumvent any lock downs. These devices can either have their own internet connection (such as any smart phone) or be connected to the corporate Wi-Fi. Use of unauthorised devices can cause issues in terms of where your business information resides (and its safety) and the ability to forward that information without suitable controls.

Using elevated rights and accounts in an unfettered fashion

Where elevated accounts’ details are widely shared (especially if they also may remain static) presents an opportunity for accounts to be relied upon as a workaround or inappropriately used.

Process review

Each process should be subject to a formal process review at least annually where data security is put at risk and following data security incidents. Although annually is a minimum not a maximum. The attendees should comprise of a multi-disciplinary team who represent those who devised and implemented the process and those users who are subject to them.

> Process reviews are held at least once per year where data security is put at risk and following data security incidents.
>
> Data Security Standard 5.1

Where the processes involve clinicians, they are actively involved in the reviews.

It is expected that the sessions will be a frank and honest look at where processes can be improved and streamlined with a particular focus on the root causes of any workarounds. The outcomes from the process reviews will result in a list of attributable actions for attendees. These actions should be monitored, and assurance given to the Board.

The reviews will generate a list of issues arising from the most recent review and highlight those that came up in previous reviews, and the reasons recorded for why they were not resolved which should be agreed by the Board.

Example process review outputs

The following represents an example of a process review for one process (though in reality there will be multiple processes).

Example process: Supporting clinical applications access for peripatetic clinicians coming into the organisation during winter pressures

Example attendance sheet

Attendance sheet			
Process Review	Supporting clinical applications access for peripatetic clinicians coming into the organisation during winter pressures		
Review venue	A meeting room	Date / Time	dd/mm/yy @ hh:mm
Attendees	Mrs Patricia Personnel	HR Manager	Patricia Personnel
	Mr Colin Cloud	IT Manager	COLIN CLOUD
	Miss Susan Septum	Lead Consultant	susan septum
	Mr Lee Privilege	IG / IS Manager	lee Privilege

Provide a scanned copy of the process review meeting registration sheet with attendee signatures and roles held.

Data Security Standard 5.2.1

Example agenda / actions (1st meeting)

Agenda / actions			
Process review	Supporting clinical applications access for peripatetic clinicians coming into the organisation during winter pressures		
Review venue	A meeting room	Date / Time	dd/mm/yy @ hh:mm
	Agenda Item	Action	Allocated
Agenda / actions	Honorary contracts	In order to work with us visiting clinicians need the contractual basis resolved via an honorary contracts process	PP
Timescale		dd/mm/yy	
	Access to systems	Most of our visiting clinician come from our neighbouring who use the same EPR system and windows login. Investigate and report back if we can have some form of federated login for windows & EPR.	CC
Timescale		dd/mm/yy	
	Other systems	Consult with our neighbouring trust lead consultants on what other clinical systems are required / consultant's payment for out of hours.	SS/PP
Timescale		dd/mm/yy	
	Access rights	Liaise with our neighbouring trust on having a unified account settings (password complexity, longevity etc) and set an increased lockout period (20 minutes) during the winter period (Jan/Feb) in clinical areas.	LP/CC
Timescale		dd/mm/yy	

Action is taken to address problem processes as a result of feedback at meetings or in year.

Data Security Standard 5.3

Example agenda / actions (follow-up meeting)

Agenda / actions				
Process review	Supporting clinical applications access for peripatetic clinicians coming into the organisation during winter pressures			
Review venue	A meeting room	Date / Time	dd/mm/yy @ hh:mm	
	Agenda Item	Action	Allocated	Status
Previous items				
Agenda / actions 1)	Honorary contracts	In order to work with us visiting clinicians need the contractual basis resolved via an honorary contracts process. *Actions Process produced & implemented*	PP	Resolved
2)	Access to systems	Most of our visiting clinicians come from our neighbouring who use the same EPR system and windows login. Investigate and report back if we can have some form of federated login for windows and EPR. *Action: investigation complete it is technically possible however our neighbouring trust IT department is not cooperating*	CC	Unresolved
3)	Other systems	Consult with our neighbouring trust lead consultants on what other clinical systems are required / consultant's payment for out of hours. *Actions: require access to PACS and lab results out of hours issues*	SS/PP	Resolved
4)	Access rights	Liaise with our neighbouring trust on having a unified account settings (password complexity, longevity etc) and set an increased lockout period (20 minutes) during the winter period (Jan/Feb) in clinical areas. Actions: Lockout period resolved, unified setting with other neighbouring trust unresolved due to lack of cooperation	LP/CC	Unresolved
New items				
5)	Availability of PCs	Visiting clinicians have reported problems using shared PCs due to previous user locking and not logging off	CC/LP	New
Items 2 & 4 to included in next board meeting – on dd/mm/yy @ Board Room 1				

An informed board

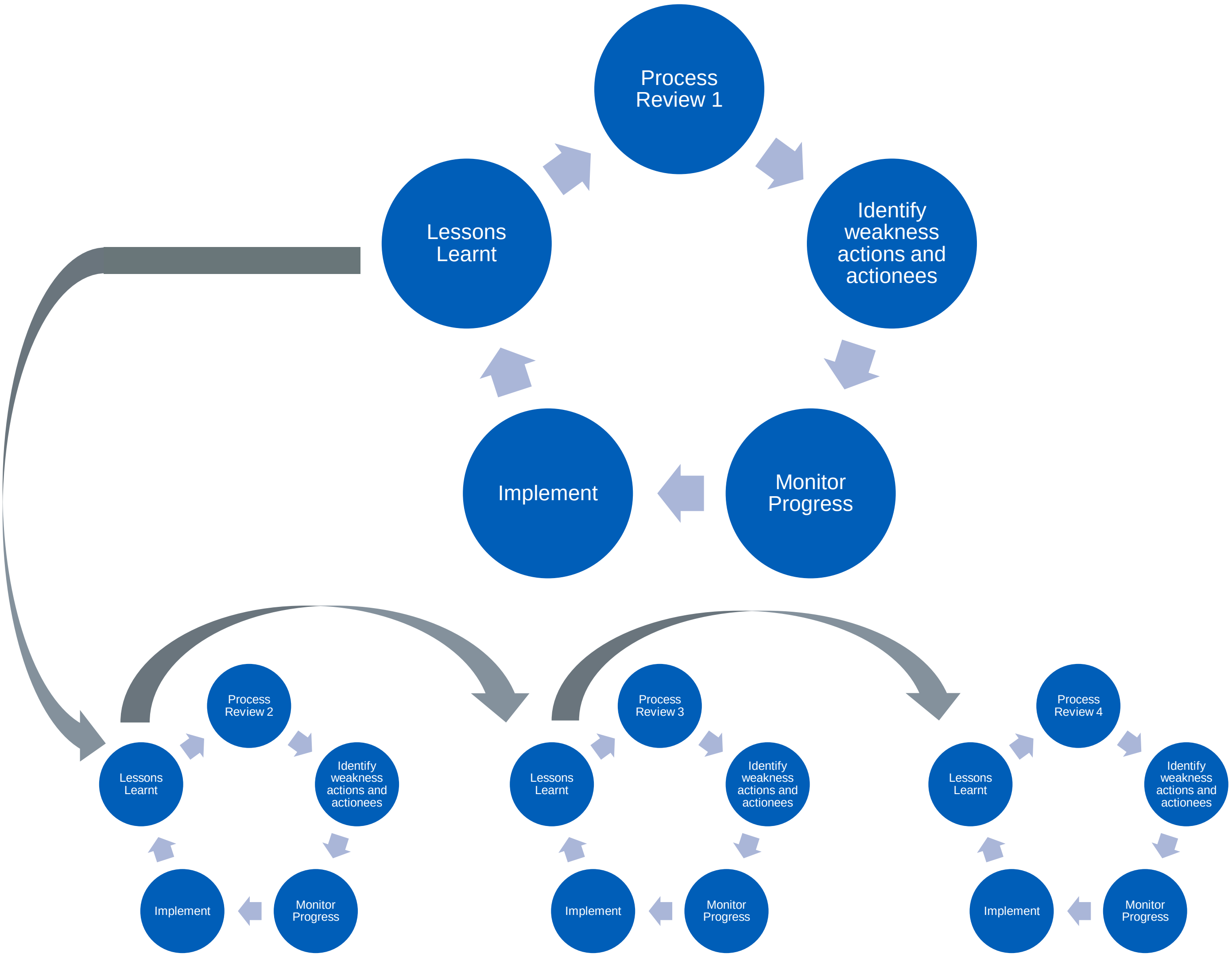
As well managing your actions (such as through follow up meeting above), it is important that the board is informed. This can be in the form of summarised RAG report (such as of the example above). This can be overall or by exception, for example in the follow meeting the red actions (2 & 4) may be the ones you want to report to board for their guidance.

Are the actions to address problem processes, being monitored and assurance given to the board or equivalent senior team?

Data Security Standard 5.3.1

Lessons learnt from the process reviews

The lesson learnt from process reviews should form part of a continuum of improvement cycles.



Completion of a process review and associated actions may result in several lessons learnt.

Those lessons learnt should then be feed in other process reviews. These in turn should influence response plans for security and business continuity incidents.

What’s the difference between actions and lesson learnt?

Actions tend to exist in relation to one process whereas lessons learnt can have a broader applicability.

Examples

Process	Action	Lesson Learnt
Starter user account creation	Commonly guessable passwords being used on account setup change process	Check other user password events such as password reset on accounts to check if guessable passwords are used
Firewall review check	Remove “any any” rule policies replacing with more granular ones.	Check other gateway devices IPS/IDS and DLP policy set for any insecure rules
Job description review	Some contractors job descriptions do contain data security and protection clauses	Review other contractor organisations in use to see if they comply and their job descriptions include data security clauses (if not do not use / ask them to change)

You can collate your lessons learnt (such as the ones in the above example) and prioritise them and action the most urgent quickly.

Example

Priority	Lesson Learnt	Owner	Due
1	Check other gateway devices IPS/IDS and DLP policy set for any insecure rules	Colin Cloud	1/9/yy
2	Check other user password events such as password reset and account to check if guessable passwords are used	Lee Privilege	3/10/yy
3	Review other contractor organisations in use to see if they comply (if not do not use / ask them to change)	Patricia Personnel	11/11/yy

Systemic vulnerabilities

If during your reviews, you discover any systemic vulnerabilities -these can range from Obfuscated automated admins scripts, using older insecure software components to systems having a password policy that allows guessable passwords.

These should be treated in the same way as lessons learnt, prioritised and actioned as soon as practicable.

Improving data security and protection: learning from incidents

As well as process review there is a wealth of learning from real world incidents. During the incident itself there is always a focus on remediation however after the incident there is opportunity to investigate.

The investigation should be thorough to determine the root cause analysis of the incidents. This will lead to a number of lessons learnt that can be applied. These should be treated in the exact same way as your lesson learnt (as described earlier).

Learning from those mistakes, in particular technical ones, should allow you to look at your system or controls to ensure the same incident does not occur again. This can be through process reviews, simulations, business continuity exercise (as discussed in the big picture 7 Continuity planning) and penetration testing.

Root cause analysis is conducted routinely as a key part of your lessons learned activities following a data security or protection incident, with findings acted upon.

Data Security Standard 5.1.1

Appendix 1 -

Table of data security level 5 assertions

Assertion	Evidence	Evidence
5.1 Process reviews are held at least once per year	5.1.1	Root cause analysis is conducted routinely as a key part of your lessons learned activities following a data security or protection incident, with findings acted upon.
	5.1.3	List of actions arising from each process review, with names of actionees.
5.2 Participation in reviews is comprehensive, and clinicians are actively involved	5.2.1	Provide a scanned copy of the process review meeting registration sheet with attendee signatures and roles held.
5.3 Action is taken to address problem processes as a result of feedback at meetings or in year	5.3.1	Are the actions to address problem processes being monitored and assurance given to the Board or equivalent senior team?

Appendix 2 -

Useful resources

NHS Networks CSED business process re-engineering methodology.

A toolbox for process re-engineering.

https://www.networks.nhs.uk/nhs-networks/common-assessment-framework-for-adults-learning/archived-material-from-caf-network-website-pre-april-2012/documents-from-discussion-forum/Business_Process_Re-engineering_BPR_Methodology_v2.2.pdf/view

Appendix 3 –
The National Data Guardian Reports

The NDG Report

Recommendations to improve security of health and care information and ensure people can make informed choices about how their data is used.

Review of Data Security, Consent and Opt-Outs

The government response

‘Your Data: Better Security, Better Choice, Better Care’ is the government’s response to:

- the National Data Guardian for Health and Care’s ‘Review of Data Security, Consent and Opt-Outs’
- the public consultation on that review
- the Care Quality Commission’s Review ‘Safe Data, Safe Care’.

It sets out that the government accepts the recommendations in both the National Data Guardian review and the Care Quality Commission review.

It also reflects on what we heard through consultation to set out immediate and longer-term action for implementation.

Your Data: Better Security, Better Choice, Better Care