NHS
Blood and Transplant

NHSBT Board

Annual Management Quality Review 2020-2021

27th May 2021

Status: Official

Summary and Purpose of Paper

In a year dominated by the response to the COVID-19 pandemic NHSBT:

- maintained compliance with all regulatory requirements
- underwent 13 remote and on-site external regulatory inspections none of which resulted in critical or major findings
- retained all laboratory accreditations
- completed all regulatory preparations for EU Exit as required.

Key transformation/BAU activities completed or progressed included:

- the opening of NHSBT Barnsley, now fully licensed and operational for blood supply and tissue and cell activities
- the convalescent plasma project where 23 new sites were opened and licensed and,
- successful continuity of the self-inspection programme despite lockdown restrictions, following adaptation to remote auditing.

Key objectives for 2021/22 will be to:

- work with regulators in preparation for the expected move to full-scale collection of plasma for manufacture into medicinal products (PFM)
- increase focus on Quality Management System Continuous Improvement (CI) activities, after a pause to initiatives during 2020/21
- manage the additional regulatory burden arising from the new medical devices regulations, which require the up classification of devices needing use of Notified/Approved Bodies in conformity assessment.

Action Requested

The Board is asked to note that the report is provided to the Board for information and has been discussed in detail at the ARGC.

Link to Risk Strategic Priority or Regulatory Requirement

Continued regulatory compliance is critical for NHSBT to maintain its licences and accreditations, including its Blood Establishment Authorisation (BEA), Human Tissue Authority (HTA) Licences for Tissues, Cells and Organs, Medicinal Products licences and the Care Quality Commission registrations, all of which are essential to allow us to continue to save and improve lives. This report provides an annual overview of regulatory activity, key trends, information, and assurances in line with NHSBT's strategic targets for safety and compliance.

1. External Inspection Performance and External Reports

1.1 Inspection visits

There was a reduced number of external inspections in 2020/2021, as several were postponed until later in 2021, with regulators taking a risk-based approach to regulatory oversight while COVID-19 lockdown restrictions were in place. Despite this, 13 successful regulatory audits were carried out by inspectors using both remote and on-site methods. NHSBT underwent a further 10 external inspections pertaining to Health and Safety and Business Continuity standards and four of our suppliers inspected us.

1.1.1 Highlights:

- **No Critical or Major findings** were raised.
- Three remote Medicines and Healthcare products Regulatory Agency (MHRA) Blood Establishment Authorisation (BEA) inspections were carried out at Basildon, Oxford, and Sheffield – 3 Other deficiencies were raised, one at each site. Follow-up on-site inspections later in the year at Basildon and Oxford included visits to new convalescent plasma sites at Reading and Stratford and only 1 Other finding at Oxford was noted.
- A Human Tissue Authority (HTA) virtual inspection was performed at Liverpool with 1 minor shortfall and two pieces of advice and guidance raised. The HTA further performed a pre-licensing assessment of the Barnsley site prior to receiving tissue and cell licences for human application activity and storage of material.
- NHSBT Barnsley also achieved MHRA BEA and Wholesale Distribution Authorisation (Human) approvals via successful remote audits. One Other and one Comment was raised during the MHRA assessment.
- NHSBT Barnsley RCI and H&I laboratories were added to the United Kingdom Accreditation Service (UKAS) certification for ISO15189.
- The Liverpool Reagents laboratory retained ISO13485 certification following remote assessment by the Underwriter's Laboratory.
- NHSBT laboratories: RCI sites, NTMRL and NBL (the latter two now known as Microbiology Services Laboratory) underwent further UKAS remote assessment and in each case accreditation to ISO15189 was successfully maintained.

1.1.2 Inspection Outcome Summary:

The table below summarises the outcome from inspections. Refer to Appendix 1 for further details of key findings.

Licence/ Accreditation:	Number of Audits performed:	Outcome:
MHRA BEA	4 Remote 2 On-site	5 Others 2 Comments
HTA TQSR	2 Remote	1 Minor shortfall 2 Advice & Guidance
Accreditations (UKAS and UL)	5 Remote	15 Findings 5 Recommend'ns

1.1.2 Identified trends, risks and actions taken from Inspections

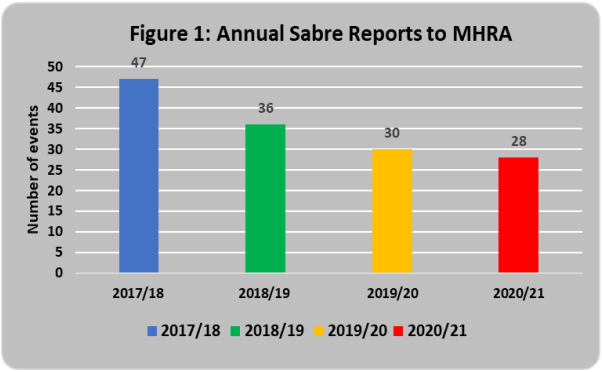
All findings have been, or are in the process of being, addressed to the satisfaction of the relevant regulator.

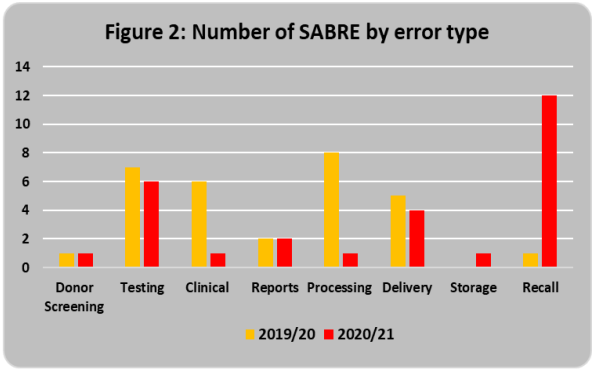
Finding/risks highlighted	Risk to donor / patient safety or NHSBT	Actions taken or in progress	Measure of success
Poor incident investigation and management / complaint handling (raised in two inspections and a recurring finding noted in inspections last year)	Potential for ineffective corrective and preventive actions to result in repeat incidents and hence not reduce the risk to donor/patient.	Holistic review of all aspects of incident management has been completed with a phased improvement project underway. June 2021 will see the launch of process improvements to give clarity to staff and regulators, supported by enhanced training and launch of a web reporting tool for incidents	A decrease in external findings for poor investigation and management of incidents.
Lack of documented procedures (examples noted at three inspections)	Potential for critical steps to be performed incorrectly or inconsistently if not fully documented in SOPs, which may impact on donor/patient safety.	Re-emphasised to all teams that ALL critical steps of procedures must be documented	No further examples identified.
Team MQR meetings were cancelled and not rescheduled within a suitable time. (previously noted in 2019/20 also)	Failure to meet regulatory responsibilities for regular management review of performance. Potential that identification, or management of, adverse trends is delayed or omitted.	Teams reminded of the requirement to maintain regular and documented MQR meetings.	No further examples identified

1.2 Serious Adverse Blood Reactions and Events (SABRE)

There were 28 SABREs reported to MHRA this year, **a decrease of 2 on the previous year and the lowest number for 4 years.** See *Figures 1 and 2.*

Q4 had 12 events giving a final quarter rate of 3.3 events per 100,000 donors which is higher than Q3 (1.5), however the annual rate was 1.9 events/100 000 donors; this is a slight improvement compared to 2019/20 (2.1). This figure remains equal to or better than recent SABRE data from the three other UK Blood Transfusion Services.



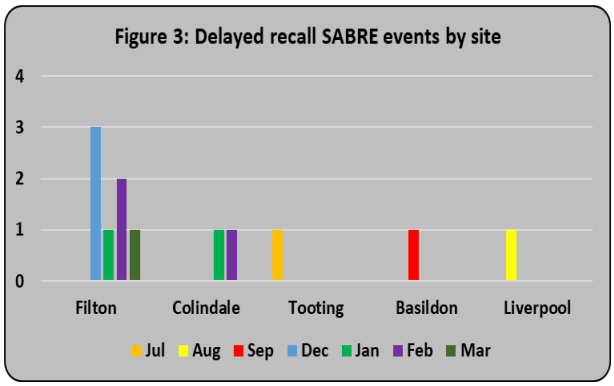


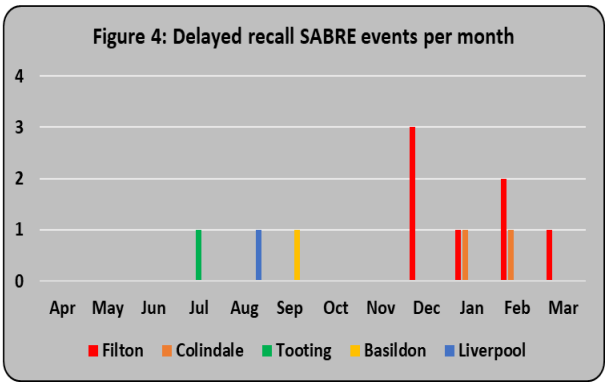
1.2.1 Highlights:

- **Processing errors have decreased**, largely due to a fall to zero for events of failure to irradiate blood products (4 reports last year)
- **Clinical events have decreased**
- **Donor screening events remain low** for the second consecutive year.

1.2.2 Improvements needed:

- The **most common reason for SABRE** reporting this year was delayed notification to hospitals of **product recalls** (12). This compares with only one recall issue reported to MHRA for each of the two preceding years. Delays in recalling product increases the risk that an unsuitable unit is transfused to a patient – in each of these events **the delay did not result in any adverse patient impact**. Seven events occurred at Filton and in the last 4 months of the year. Root cause analysis identified failure to prioritise recall incidents and staffing issues over the Christmas/New Year period. Preventive measures have been introduced and by March improvement had been noted with only one late recall reported in that month. A continuous improvement workshop scheduled for April 2021, will identify if further actions are needed. *See Figures 3 and 4.*



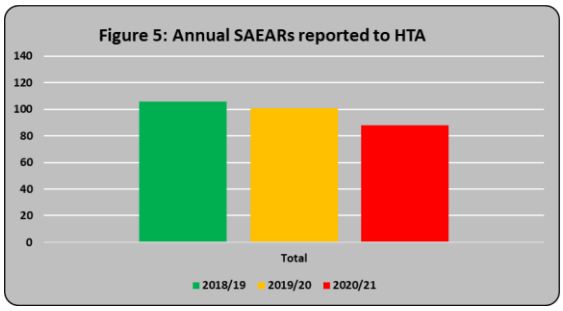


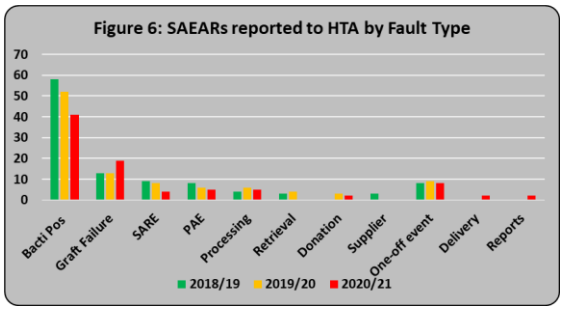
1.3 Human Tissue Authority (HTA) Tissue and Cells Serious Adverse Events and Adverse Reactions (SAEARs)

There were 88 SAEARs reported to the HTA this year compared with 101 last year.

1.3.1 Highlight:

- The **number of SAEARs reported this year has decreased for the second consecutive year.** The most common causes are consistent with previous years and **there are no trends of concern**. Excluding clinical events (Patient Adverse Event / Serious Adverse Reaction/Event / failed engraftment), there were 19 events raised that were attributable to NHSBT. These are being managed via appropriate CAPA and with no significant trends. *See Figures 5 and 6*.
- **The number of bacterial contamination reports decreased this year by 19%**. The majority of reports are raised from within Cellular Molecular Therapies (CMT) laboratories (78%). Due to the open nature of the cell and tissue collection process, bacterial contamination particularly from skin flora and the environment, is a known risk. CMT laboratories test products received and report the bacteriology results and the sensitivities to the clinicians involved, although this does not indicate contamination occurred within the CMT facility. **The values of bacterial contaminated products in CMT are in keeping with published results** and all bacteriology positive results are investigated and followed up with a clinical review. NHSBT employs stringent aseptic protocols and routine environmental monitoring of both operator technique and clean room facilities to ensure there is minimal additional risk to donations during laboratory processing.





1.4 Organ Donation and Transplantation (ODT) SAEARs reported to HTA

As part of its Assisted Function role, NHSBT reports all incidents submitted by transplant centres to the HTA.

- **There was only one SAEAR event** directly attributable to NHSBT activity – this was due to an error by our third-party transport provider where they delivered a donated liver to the incorrect location. A full investigation has been performed, CAPA has been implemented, and the HTA have closed this incident.

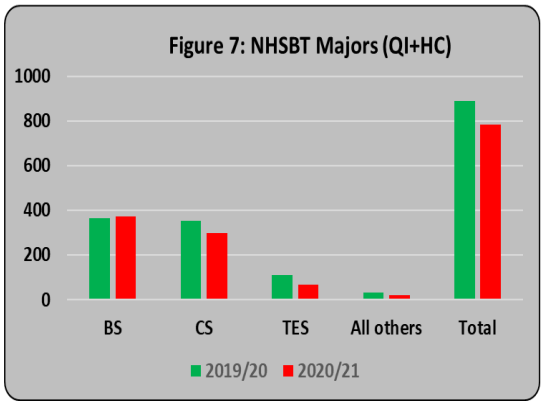
2. Quality Management System Performance Update

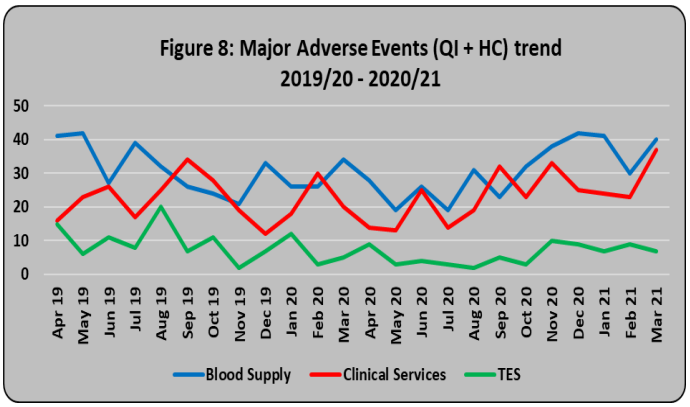
2.1 Critical and Major Internal Quality Events: there were no internal events classified as Critical during 2020/21.

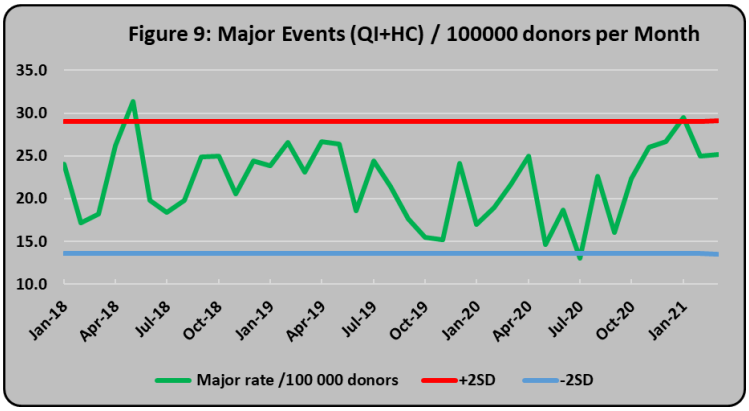
There was a reduction in total events (quality incidents and hospital complaints) raised compared to last year. Clinical Services (CS), previously Diagnostic Therapeutic Services), and Blood Supply (BS), as the two largest Directorates, continue to raise most adverse event reports, with Tissue and Eye Services (TES) responsible for a further 9% of events. *See Figure 7*.

The decrease was due to a fall in both CS and TES events, possibly corresponding to less activity in Q1/Q2, as some cell collections and tissue procurement were reduced or paused due to Covid-19 restrictions. As activity levels picked up in the latter part of the year, the number of adverse events also started to increase again. *See Figure 8*.

Blood Supply (BS) saw a rising trend over 2020/21, which peaked in January 2021 when all new convalescent plasma sites were fully operational. Analysis of the number of majors per number of donors found that, apart from the January peak, event occurrence was within the normal range and thus indicated that the increased reports noted was **reflecting an increase in activity rather than an increase in error rate –** *See Figure 9.* This is further reinforced by the comparison with last year's figures that showed BS majors in 2020/21 finished on 371 events, only marginally ahead of 2019/20 (363). Figure 8 shows the monthly trend for the past two years.



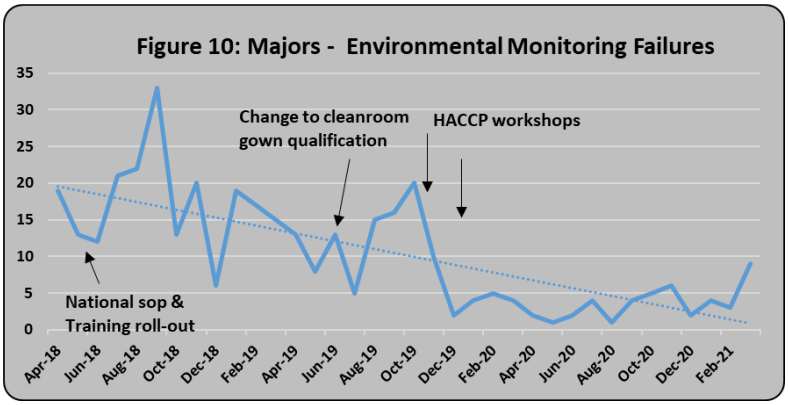




2.1.1 Highlight:

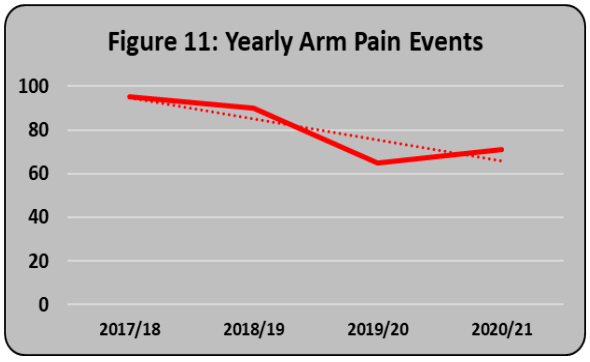
- **Sustained improvement in numbers of environmental monitoring (EM) failures in clean rooms**. Building on improving figures in 2019/20 after the rollout of a standardised national procedure and training package, in addition to other contamination control strategies introduced over the past two years, 2020/21 saw all laboratories report consistently lower monthly rates of EM failures, indicating the interventions made have been successful. This provides assurance in the quality of

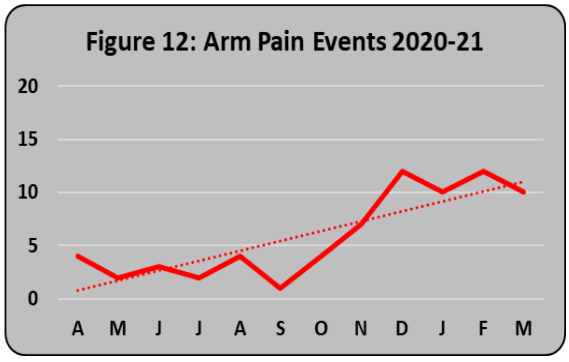
the aseptic training and technique of our staff, the performance of our cleanroom facilities and the safety of our products. *See Figure 10.*



2.1.2 Improvement Needed:

Arm Pain Events increasing: CI activity during the past three years including introduction of an e-learning module and procedural changes had produced a sustained reduction in arm pain events which continued well into 2020/21. This resulted in a 2-year trend of reduced numbers of serious adverse events of donation (SAED) where donors experienced arm pain lasting more than 12 months (see 2.3). However, from Q3, there has been a threefold increase in events raised each month. A review has been initiated by Blood Donation of all Donor Adverse Events including Arm Pain Events. This will aim to review risk, establish the root cause(s) and enable further improvement initiatives to be taken. *See Figures 11 and 12.*

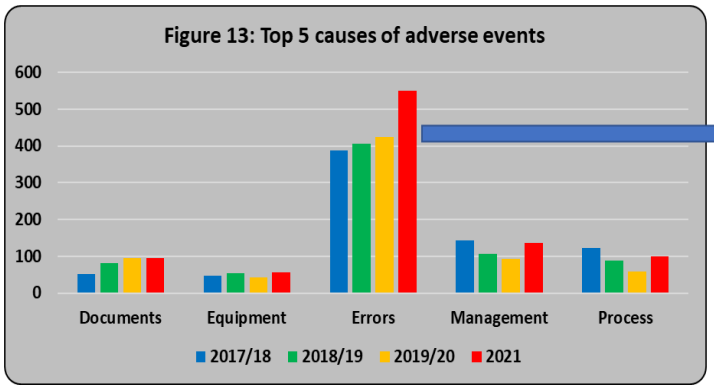


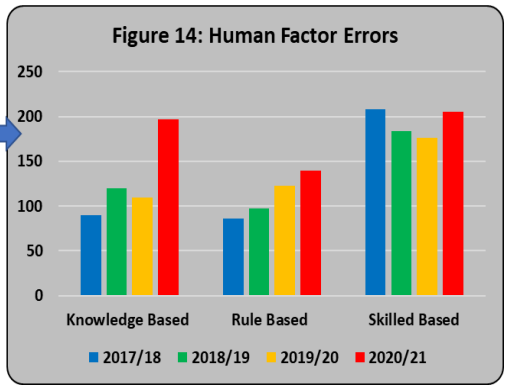


2.1.3 Common Root Cause Trends of Major Adverse Events:

The top five root causes of adverse events have remained the same this year.

- **Errors with a human factor cause made up 52% of identified causes** - this is **an increase of 3%** on 2019/20.
- Increases were seen in all three human factor error types, however of most note was a **79% increase in knowledge-based errors**. The Human Factors working group is continuing its work on human factors to reduce errors, this will be a key focus in 2021/22. *See Figures 13 and 14.*





2.2 **Patient Adverse Events (PAEs)**: numbers increased slightly this year to 157 (148 last year). Events potentially attributable to NHSBT fell to just 9 events (6%), however a notable increase was seen in clinical events, rising to 148 from 106 last year. This is a reversal of previous years where the clinical events have trended down. Events have been reviewed at BSCARE and there have been no untoward trends identified.

2.3 **Serious Adverse Events of Donation (SAED)**: the numbers of SAED reported fell slightly to 31. *See Figures 15 and 16.*

As in previous years, **the top three causes of SAEDs** continue to be:

- needle insertion issues lasting more than 12 months,
- hospital admission within 24 hours of donation events and
- fractures, also within 24hrs of donation.

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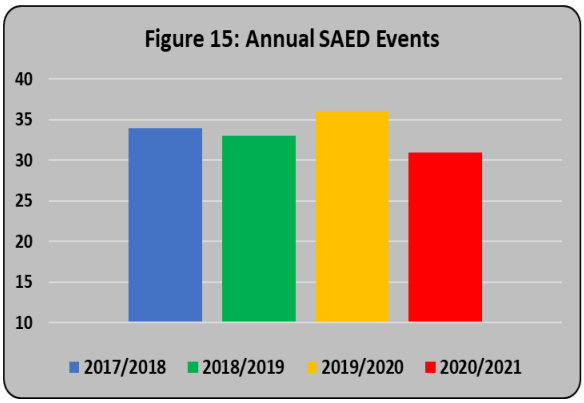
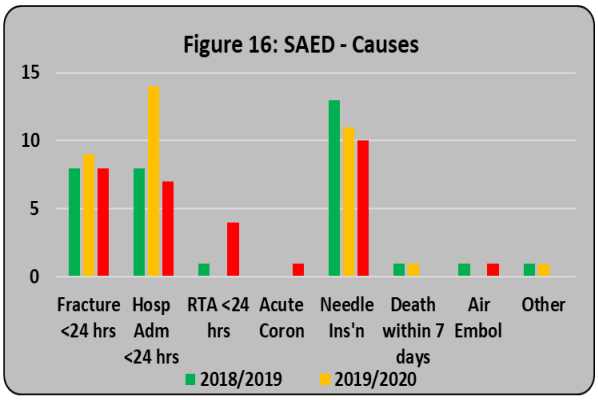
Within two of the top three causes, improvements were noted:

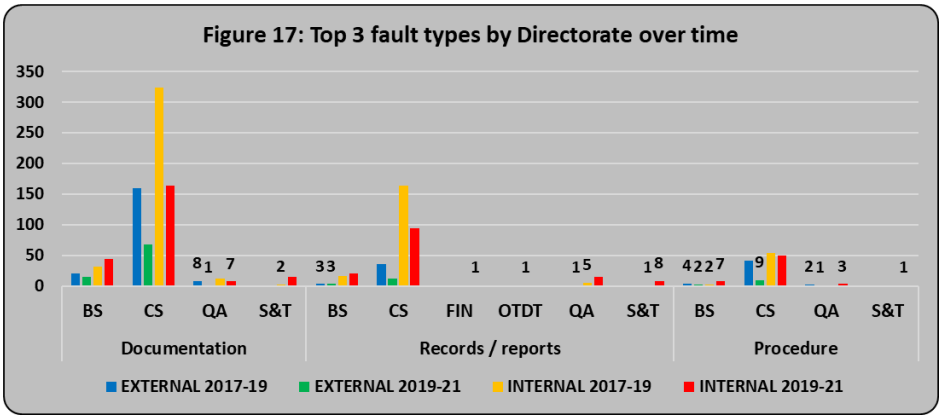
- **A fall in hospital admissions post-donation**, following the introduction of the STRIDES study (STRategies for Improving Donor Experience) during 2019/20. This involved trialling several interventions to reduce the severity of vasovagal events (fainting), which is one of the main causes for hospital admission after blood donation. The pilot was successfully concluded with good outcomes, and the procedure is currently being rolled out to all sites as BAU.
- **Needle insertion events lasting longer than 12 months decreased for the second consecutive year.** Substantial refinements in recent years focussed on the collection process, and associated training. This, until recently has resulted in a reduction of overall numbers of events, including those lasting greater than 12 months. The recent increase in arm pain incidents noted in 2.1.2 has not yet impacted on the numbers of longer-term arm pain events classed as SAEDs, as these are only reported 12 months after donation.





2.4 Self-inspection:

- Analysis of audit outcomes continue to show **strong and positive correlation between internal and external inspection findings.** This provides good assurance that our self inspection process remains effective. The report in Appendix 2 provides longer term assurance on self inspection performance.
- Trend analysis has identified the most common fault types. The top three have remained the same as previous years with the reduction in those related to training (previously 3rd) continuing. *See Figure 17 below and Appendix 2* for further details on audit trending.
- **36/40 internal audits were completed in year and the remaining four are in progress** using the 3-step process developed this year to include a desktop assessment of licenses and quality system data. Only where necessary, were on-site follow-ups performed. This was in line with guidance from and approaches taken by MHRA, HTA and UKAS.
- Although not without its challenges for auditors unfamiliar with remote audit techniques, this broad approach has proved successful and will be continued into the 2021/22 schedule to reduce time spent on site and increase efficiency of self inspections.



2.5 Supplier Audits:

- Four supplier audits were completed in 2020/21; three were remote audits and one on site - all were in relation to new suppliers.
- The project to improve the Supplier Management Process for Quality Critical Items and Services has continued throughout the year. Implementation of the new documents was

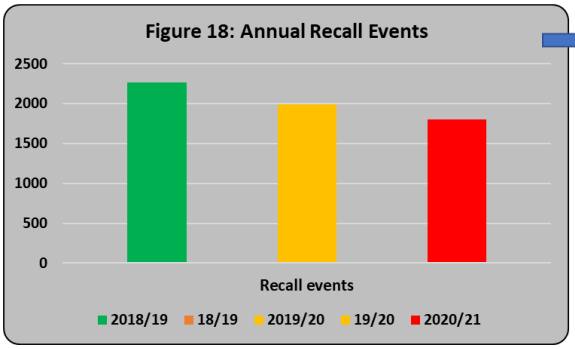
achieved on target in July 2020 despite the original planned face to face workshops not being possible. The alternative blended learning approach consisting of a training manual, videos and interactive virtual workshop was well received. This work will provide data to enhance forward planning of the supplier audit schedule ensuring audits are prioritised based on risk and informing a 3-5-year supplier audit plan.

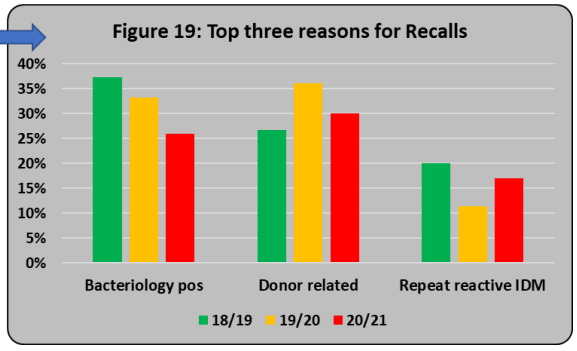
- The Supplier Management Process for Quality Critical Items and Services was reviewed by UKAS who told us it "**is the most robust supplier review process I have ever seen, it's very impressive**"

2.6 Product Recalls:

The number of **product recall events decreased by 10%** to 1797, further improving on a 12% decrease noted last year.

- The top three reasons to recall products remained the same as last year, with donor-related recalls the most prevalent cause.
- **The percentage of recalls due to bacteriology positive tests fell** to 26% from a third of all events last year, consolidating year on year improvements since a new air-conditioning system was installed in the Manchester Bac-T laboratory in 2018.
- A cold room issue in Filton saw a one-off increase in manufacturing defect events (this constituted 13% of all recalls, last year 4%) – data not shown. *See Figures 18 and 19*.

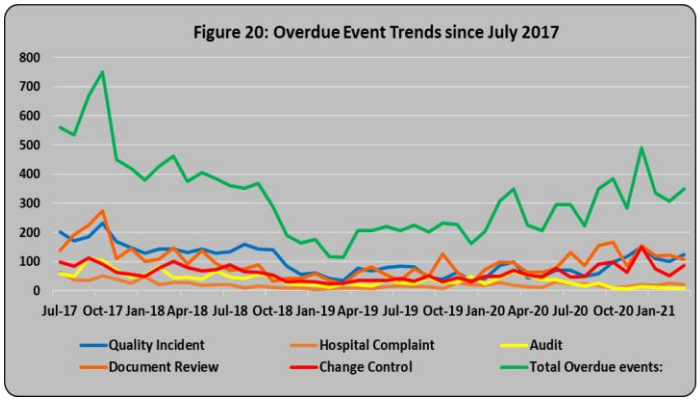


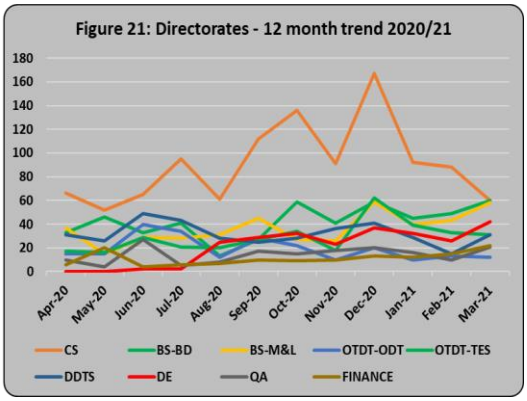


2.7 Overdue Quality Management System (QMS) Event Management:

- **Numbers of overdue events remained at high levels this year** with 348 events overdue at year end, the same as 2019/20. This was in part due to the risk-based decision taken to prioritise more serious incidents, in light of the increased resources directed to COVID-19-related projects throughout 2020/21 - **thus ensuring no increased risk to donor or patient safety.**
- **Periodic improvements were seen**, with a good recovery in Q4 after a high of 489 events over the December-January period, and **the six month trend is down.** However further sustained reductions are needed in order to demonstrate the QMS continues to operate effectively. Some planned strategies to address this were paused this year; a key regulatory focus for the coming year will be to resume CI activities with a view to improve and then sustain performance to acceptable levels in 2021/22. Some work has already recommenced in Q4 and successful pilots such as Quality Management Cells, which proved effective in reducing events in Clinical Services, will be rolled out to other departments.

- Within Directorates, the performance of **Clinical Services was of note, finishing the year with a 64% reduction in events** from a high in January 2021 of 167.





3. Quality and Compliance Support

3.1 Regulatory Updates/Licence Changes:

2020/21 was a very busy year from a regulatory perspective, much of which was due to the participation in two COVID-19 Convalescent Plasma (CP) trials (REMAP-CAP and RECOVERY), the End of the Transition Period for EU Exit and the merger of two existing blood donor centres into the new Barnsley Centre.

- The past 12 months has had a significant pull on QA resource given the required focus on the support of plasma collection; initially Convalescent Plasma to support Clinical Trials and then in the last quarter the pivot to Plasma for Medicines. The period covered regulatory engagement and the subsequent QMS risk assessment support falling out of an extensive Change Control programme including: the set up and BEA licencing of 23 new temporary Donor Centres, the validation and implementation of new collection machines and bespoke harnesses, the assurance requirements surrounding new staff training systems, the initial importing of results and then in-house set-up and validation of required COVID-19 antibody testing, the provision of timely document control and deviation advice and guidance, the set-up of a technical agreement to store plasma off site at Blood Products Laboratory, the support for off-site sampling activity, (and then) the pivot to PFM (following the initial project with QA led intelligence gathering for the stockpile of recovered plasma as a proof of concept in December), CP site de-commissioning (ongoing), off site storage specification/audit and temperature mapping at Pullyen (3rd party of site storage facility), the support in writing/approving a PFM specification, support surrounding required changes to Donor consent, support of required British Pharmacopeia Protein testing methodology changes (for required product testing), support for the specification development for HAV/B19 testing and ongoing QA-led intelligence gathering to ensure the process and systems set up minimise the risk of collected plasma and samples not being able to be released and accepted by a NHSEI appointed fractionator.
- NHSBT Barnsley became operational during Q2. Successful remote pre-approval inspections by MHRA and HTA resulted in Barnsley being granted HTA licences in the tissues and cells human application and research sectors and the site was also added to the BEA and Wholesale Distribution Authorisation. An application to the manufacturing licence for investigational medicinal products will be made next financial year to licence the new Advanced Therapies Unit.

- Further variations were made to the BEA with the addition of a new London whole blood donor centre at Shepherd's Bush and the relocation of the Liverpool donor centre to an interim location pending a final move to a new, final location later in 2021. The interim move was required at short notice after building maintenance issues at Moorfields rendered the existing site unsuitable.
- The end of the EU Exit transition period in Q3 passed with minimal disruption to NHSBT activities. Throughout 2020/21, we performed ongoing reviews of licenced activities and changing requirements to ensure we remained compliant with post-transition UK regulations. The UK's exit from EU regulatory oversight and the implementation of the Northern Ireland Protocol meant that the majority of products sent to Northern Ireland and/or the EU are now considered exports and we will continue to need to maintain compliance with EU regulations for those products. Products received from the EU are classified as UK imports and where required, licences have been updated to accommodate this.

3.2 Support and Improvement Activities:

- **Blood Supply** - Despite the challenging circumstances, all events have been logged promptly through QA Direct. Pro-active management and trending of the events has ensured that risk-based support has been provided and where required, improvement opportunities have been identified and taken. CI initiatives include:
  - a CI facilitated workshop held in Q3 with key operational and QA stakeholders in the North, to look at improving the event management process and ways of working, to prevent overdue events. The outputs are to be taken forward nationally following review and agreement
  - trend review as part of the monthly MQR process which quickly identified a rising number of recall events raised in Hospital Services. There is now a CI facilitated workshop planned for April 2021 involving key stakeholders (including clinical), to review the end to end recall process and put forward recommendations
  - monthly meetings between CI and QA to review high frequency events reported through the MQR process. In January 2021, 'Reconciliation' events were noted to have risen sharply in December 2020. This has initiated a review of both event classification and the effectiveness of national actions implemented in 2018/19 to reduce the number of 'missing unit' events
  - national review of an increasing incidence of potential high risk 'air in line' events (with potential air embolism for a donor) using Scinomed machines in the CP collection programme. Joint working with the supplier enabled review of the machine set up, alarm flags and key consumables. A further QI raised in Q4 resulted in the machines being removed from use and a medical device report being made to the MHRA in collaboration with the supplier.
  - pilot of a new group to review clinically significant events before they are discussed at the BSCARE meeting. The group, formed following Head of Nursing/Lead Quality Specialist discussions, has been termed the 'MRI - Scan' (Major event Review Initiative). The first meeting was held in Q4 and covered Discretionary Testing. Several actions were identified and will now be followed up at the April 2021 meeting.
  - Change Programme and Project Support: a number of transformational projects in Blood Supply were paused during Q1-Q3 to allow focus on critical activity needed during the Covid 19 pandemic. In Q4, some projects re-commenced, these include Session Solution, e-Rostering, the Logistics Review Programme, replacement Arm

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Cleaning device, International Blood Pack 1, and the suite of Testing Programme projects. These projects are fully supported by QA resource.

- QA support has continued for the work linked to replacement of the current bulk Copper Sulphate supplier (for risk issues). A desk-top audit was completed in quarter 4 by QA as part of this activity.

- **Plasma for Medicines (PFM)** - QA representatives have supported the delivery of Minimum Viable Product (MVP) for PFM in several areas including testing, manufacturing, off-site storage, quality monitoring, collections, pulse modifications and document control. QA have been actively managing the change controls associated with the project, ensuring that all relevant actions were closed in advance of the first sourced plasma collection. This support enabled the Responsible Person to approve go-live of PFM collections in Q3 (April). We have continued to liaise with the MHRA to ensure that they are aware of the progress of the PFM project and that all NHSBT sites are appropriately licensed.

- **CAR-T Cell Expansion** - With three sites already operational for Chimeric Antigen Receptor Treatment (CAR-T) for NHS patients, Q4 saw the first commissioned CAR-T treatment at St. James' Hospital Birmingham. This was supported by QA, TAS Leeds and SCI Birmingham. Work is continuing on commissioned CAR-T products and clinical trials to commence in CMT Barnsley.

- **Organ Donation and Transplantation (ODT) -** QA has continued to provide regulatory advice to support delivery of the OTDT-ODT business plan - notable projects this year included:
  - Increasing the Number of Organs Available for Research (INOAR) – this project went live in Q4 2021
  - Assessment and Recovery Centres – determine the regulatory pathway for virtual and/or physical perfusion hubs (under the organ utilisation programme)
  - Rollout of the Opt-out Organ Donation phase II, after the Deemed Consent Act became law in Q1
  - Digitisation of the UK Living Kidney Sharing Scheme (UKLKSS) in order to reduce manual errors and,
  - Rectus fascia – service development - introduce a process for retrieval from organ donors to store/release as a tissue.

4. Continuous Improvement Plans for 2021-2022

4.1 The Quality strategy will be refreshed this year. This "enabling" strategy for NHSBT will be developed in consultation with stakeholders and also take into consideration "what good looks like" in other similar and relevant industries e.g. other blood services, pharmaceutical, logistics. The Quality Management System needs to be easy to comply with and we aim to work in partnership across NHSBT to add value to our services. The discovery work required will begin in Q2 2021/22.

4.2 As discussed in section 2, we will be addressing issues noted with delayed recall incidents, increased arm pain events in donors, overdue event rates and also look to reduce the number of errors in the workplace caused by human factors. Additionally, other quality management system/regulatory compliance themes have been identified across directorates as continuing priorities for improvement.

- **Data Integrity** – we will continue to improve compliance and build on the good progress made this year. Following the release of a new Data Integrity MPD during Q3, training

was delivered to >160 staff who undertake the development of new processes, update existing processes, and are involved in the procurement of new systems. A Data Integrity SharePoint site was launched in January, which provides links to DI training (Module 1), which must be completed by all NHSBT staff. This includes a scenario-based assessment. Module 2 is currently in development which is aimed at those involved in tenders, change control leads, authors of validation protocols, and process owners. Additionally, a solution for a Data Integrity Assessment tool has been procured (CoreStream), and its design for this use approved by DDTS. There is a project plan in place for the testing and the implementation of the tool in in Clinical Services (CS), with pilots planned for May and June 2021. CS departments have identified all systems and processes that will be assessed using this tool.

- **Incident management** - The management and/or recording of incidents, associated risk assessments and resulting actions were found to be lacking on several occasions during external inspections and through PwC audit in 2019/2020. A full review of our management of incidents has now been completed this year. A phased improvement plan has commenced to ensure we improve this critical area of regulatory compliance. Process refinements will launch in June 2021, alongside a new web reporting tool for Q-Pulse to give electronic access for reporting adverse events to all staff.
- **PFM** - QA will continue to support PFM for the initial 3-month duration of the project, pending consideration of the business case. Key activities include support to the selection and appointment of a third-party test house for HAV/B19 testing and quality monitoring of component total protein; automation of manual processes and tendering for new plasmapheresis machines. A key QA focus will be on the design of a batch release process to ensure that plasma can be released to fractionators with the appropriate level of evidence.
- **OTDT-TES** –Islet transplantation involves removing a pancreas (as a solid organ) from an organ donor in an operating theatre prior to being processed to harvest the islets, which are then transplanted as cells. Previously pancreas donated for this purpose had been treated as an organ donation, however the HTA are clear that islets are tissues and therefore the process must meet requirements as set out in the Tissue Quality and Safety Regulations (TQSR). QA will continue to be work with the islet steering committee and the National Scottish Blood Transfusion Service to ensure the process is compliant with TQSR – this will include donor selection, testing and tissue release.

- **QA-Technology Assurance** (QA-TA), will continue to support the following:
  - business driven programmes/projects with IT system impact including Blood Technology Modernisation (BTM), Session Solution, PFM, eHematos, ODT Recovery, Living Donation, and emerging Genomics work.
  - The DDTS programmes/projects including Data Centre and Critical Infrastructure (DCCIP), Local Infrastructure and Cyber Security.
  - The establishment of Product Centres, the associated new ways of working, resulting process changes and safety and regulatory implications and the business-as-usual IT system work undertaken.
  - The Test Assurance Board activities, continually improving the software development lifecycle for safety critical systems.

- **Training** - Refine and improve parts of the Quality Management System to support training modernisation in NHSBT.

- **Electronic QMS** - following discovery work in 2020/21, we will be considering options available for procurement of NHSBT's electronic quality management system. The specification aims to provide a common incident management system for quality and health and safety. The current Q-Pulse contract has 2 additional, optional years which will end in October 2022, aligning with the Datix contract which also ends in 2022.
- **QA Direct** - An audit of QA Direct was performed by the Government Internal Audit Agency in Q4 2020-21. This concluded that overall, the QA Direct service is well designed and working effectively. The new processes appear to be bedded in and customers are accessing the new service as intended. Having successfully integrated QA Direct into the QMS, one focus next year will be to reduce manual transcription of QMS forms by transferring to a web-based reporting system, which will allow a wider group of users access to electronic reporting tools.
- **New sites –** QA will work with operational staff to ensure appropriate licensing requirements are in place for the upcoming opening of Barnsley ATU and the opening of CBC on the Filton site.

5. Key upcoming regulatory changes

Regulatory Affairs maintain a Regulatory Radar which scans for and tracks any new and changing regulations. This ensures that NHSBT can contribute to development of new/changing regulations and that we are ready for implementation with compliant quality management systems. There have been a number identified this year, but two of interest are;

5.1 **Medical Devices and In-Vitro Devices Regulations (MDR/IVDR):** New EU regulations concerning medical devices (MDR) and in vitro diagnostic medical devices (IVDR) will fully apply in the EU on 26th May 2021 for medical devices and on 26th May 2022 for in vitro diagnostic medical devices. On 1st September 2020, the MHRA published guidance on regulating medical devices from January 2021 (i.e. after the end of the EU Exit transition period). As these regulations will not take effect until after the transition period with the EU has ended, they will not be EU law automatically retained by the EU Withdrawal Agreement Act and will therefore not automatically apply in Great Britain. Nonetheless because NHSBT supply in vitro diagnostic medical devices to customers in the EU and Northern Ireland the requirements of the IVDR will have to be implemented in order to continue supplying devices to these markets. The EU regulations are complex and implement significant new requirements compared to the current directives, particularly in areas such as clinical performance evaluation, post-market surveillance and vigilance. Despite having a detailed project plan, the interpretation and implementation of the regulations is proving a significant challenge set against a backdrop of delays to the project due to COVOD-19. Additionally, the MHRA have implemented new requirements for UKCA marking of medical devices placed on the GB market; this route to market was available from 1st January 2021 and is mandatory from 1st July 2023 when CE marking will cease to be recognised in Great Britain. On top of this the MHRA have announced proposals for a new regulatory regime for medical devices in the UK the detail and implementation timeline for which are not yet known. Having to interpret and implement complex regulatory changes across different markets with overlapping timeframes is creating significant challenges for QA and operational colleagues in RCI Reagents. Some aspects of the project are behind plan particularly delivery of the underpinning Quality Management System processes and procedures and we are working to get these back on track. The new medical devices regulation will also create additional

regulatory burden and cost-pressures moving forwards due to up-classification of devices requiring greater involvement of Notified/Approved Bodies in conformity assessment.

5.2 **EU Blood and EU Tissues and Cells Directives:** An EU-led consultation on revisions to the Directives closed in April 2021. NHSBT contributed to a UK-wide response. Updated legislation is expected to be released by the end of 2021 and although no longer directly applicable to NHSBT for products made within Great Britain, this will remain of significance to us as we will have to demonstrate equivalence with any change in standards for products we send to Northern Ireland or the EU.

6. Benchmarking

During 2020/2021 QA continued with membership of the Alliance of Blood Operators (ABO) Benchmarking Group and in Q2 contributed data on recall rates, product quantities and on time in full rates for the annual member survey. The results of the survey are yet to be circulated.

7. Conclusions

The Covid-19 pandemic ensured this was a year like no other. Nonetheless, NHSBT has had a very successful year as we continued to maintain regulatory compliance across all of our operations and kept external non-conformances to extremely low levels, despite increased workloads, lockdown restrictions and at times, reduced resources due to illness or staff needing to isolate.

A number of key milestones and projects were achieved that had substantial compliance and licensing impacts to manage; this included the successful launch of a major new centre at NHSBT Barnsley, the completion of the convalescent plasma trials, which helped inform the international community of the benefits (or lack of) of CP treatment for COVID-19 patients, a swift, safe and compliant pivot to PFM and the end of the EU exit transition period with minimal interruption.

The upcoming year is predicted to be equally challenging from a regulatory perspective as we emerge from the pandemic and aim to progress both planned and delayed continuous improvement initiatives across the organisation, prepare for the coming into force of significant new regulations both in the EU and here in the UK, adjust to new requirements brought in by the PFM work, as well as the opening of an ATU facility at Barnsley and the relocation of the CBC into new facilities at Filton. Additionally, it may be expected that regulatory inspections will resume at pace during 2021/22 and may even exceed the usual timetable as regulators and accreditors look to compensate for having to delay some audits during lockdown restrictions.

As always, QA will continue to support the Operational Directorates in maintaining compliance in the most effective way possible in order to improve our regulatory performance even further.

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Edited by Joanne McMahon (Quality Systems Manager) and Helen Gillan (Assistant Director of Quality and Regulatory Compliance)

Responsible Director: Ian Bateman, Director of Quality

Appendix 1: Key findings raised at external inspection

Licence/ Accreditation:	Audits:	Outcome:	Key findings
MHRA BEA	4 Remote 2 On-site	5 Others 2 Comments	• **Management of incidents/ investigations was insufficient -** effectiveness of CAPAs were not monitored, RCA not formally justified and QIs were extended with no formal assessment • **Quality system found to be deficient**: e.g. Team MQR meetings were cancelled and not rescheduled within a suitable time, QIs took too long to be closed and contributing factors to human errors in QIs were not considered. • **Process not documented** - lack of written instructions detailing what actions to take should a blood donation venue (mobile) have an ambient temperature of >25C • **Change control inconsistencies** e.g. actions in risk assessments not clearly referenced in change plan and Q-Pulse, change controls did not capture all actions and inconsistent risk ratings in risk assessment • **Control of equipment and facilities deficient** e.g. a quality risk management approach had not been used for the validation of the Team Stores (temperature mapping had been performed only during winter/spring months without appropriate justification) and there was no clear procedure to detail action to take if -40C freezers malfunctioned.
HTA TQSR	2 Remote	1 Minor shortfall 2 Advice & Guidance	• **Process not documented** - there is a national procedure on conditioning dry shippers before use. Staff complete a form which is placed around the dry shipper to record the time of filling. This procedure is not documented, and the form is not a controlled document. • A&G1: determine if there are other local procedures which supplement national protocols and to ensure that these are documented • A&G2: reinforce the role and responsibilities of trainers, especially when experienced staff are being trained.
Accreditations	5 Remote	15 Findings 5 Recommend'n s	• **Complaint handling** - not always possible to verify that complaints had been assessed correctly to determine the need to report to the appropriate regulatory authorities • **Process not documented** - process put in place to manage EQA exercises during the pandemic not added to SOP. • Process not documented - the lab has not effectively documented its approach to the periodic review of requests, and suitability of procedures and sample requirements. • **Training deficient** - lack of evidence all staff have been made aware of the quality manual and policy. The TBTR records do not include all clinical and management staff and the training matrix for clinical staff has not been updated. • **There was slippage of the internal audit programme.** There is no evidence of a risk assessment that the

			department has considered the impact of the lack of audit on the assurance of quality and technical processes. • **Records inaccurate** - records reviewed are inaccurate with regards to PT (EQA) providers • There is no named deputy for the Clinical Lead nor description how the laboratory would manage long term absence from the clinical on call and the clinical management aspects of the role. A number of other technical findings were raised pertaining to test / assay specifics – not detailed.

Appendix 2: Internal Audit Process Review Report

(Author: Betty Wickens, Quality Systems Audit Manager)

Background

The purpose of the Self Inspection system is to provide assurance that regulation and accreditation standards are being met.

The report includes 4 years of data from April 2017-March 2021, over which we have had 2 regulatory inspection cycles. The COVID pandemic and associated travel restrictions meant a risk-based approach was taken by regulators and NHSBT to delay some external inspections, whilst others and all self-inspections, were undertaken remotely using desktop and remote audit techniques. This has impacted on the number of audit findings during 2020-21.

The report comprises two sections.

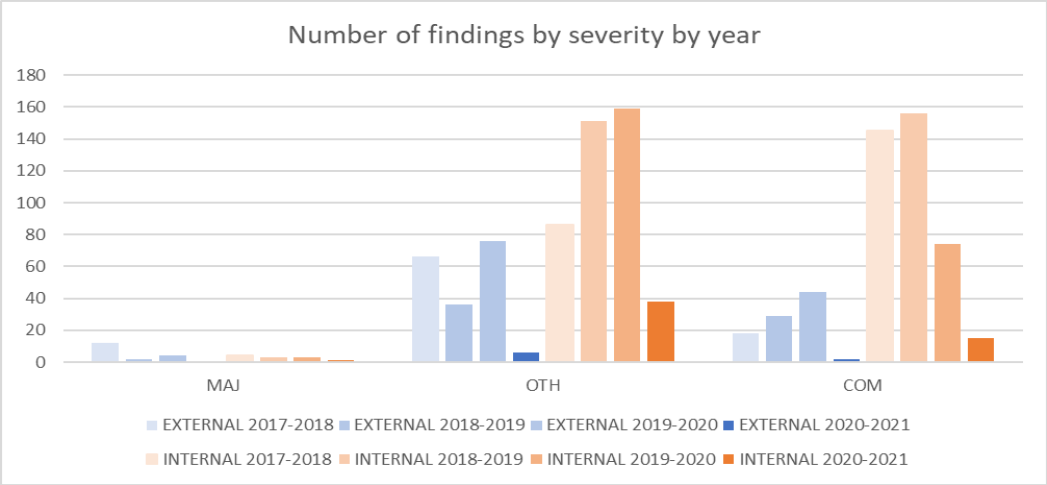
1. Regulatory inspections by Medicines and Healthcare Regulatory Agency (MHRA) and the Human Tissue Authority (HTA).
2. Accreditation audits
    - United Kingdom Accreditation Service (UKAS) for ISO15189
    - Underwriters laboratory for ISO13485
    - European Federation of Immunogenetics (EFI)
    - Joint Accreditation Committee ISCT-Europe & EBM (JACIE)
    - Foundation for Accreditation of Cellular Therapy (FACT)
    - World Marrow Donor Association (WMDA)

Headline: Internal and external findings show good correlation which demonstrates that our self-inspections are effective.

Section 1: Regulatory inspections

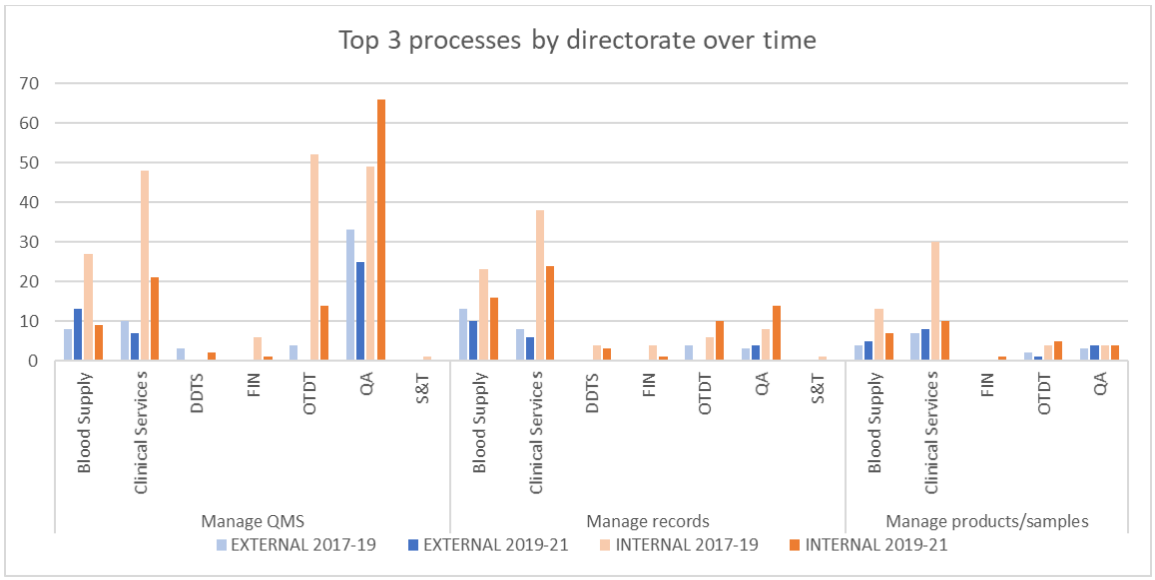
We have identified more findings internally over 4 years (2 audit cycles) than were found by external inspections.

This is to be expected and is consistent with self-inspection being more focused and identifying improvement opportunities which are raised as either deficiencies or comments. Importantly, there is good correlation in the Major category where regulatory risk is higher. This is again good assurance that our internal inspection system is effective.

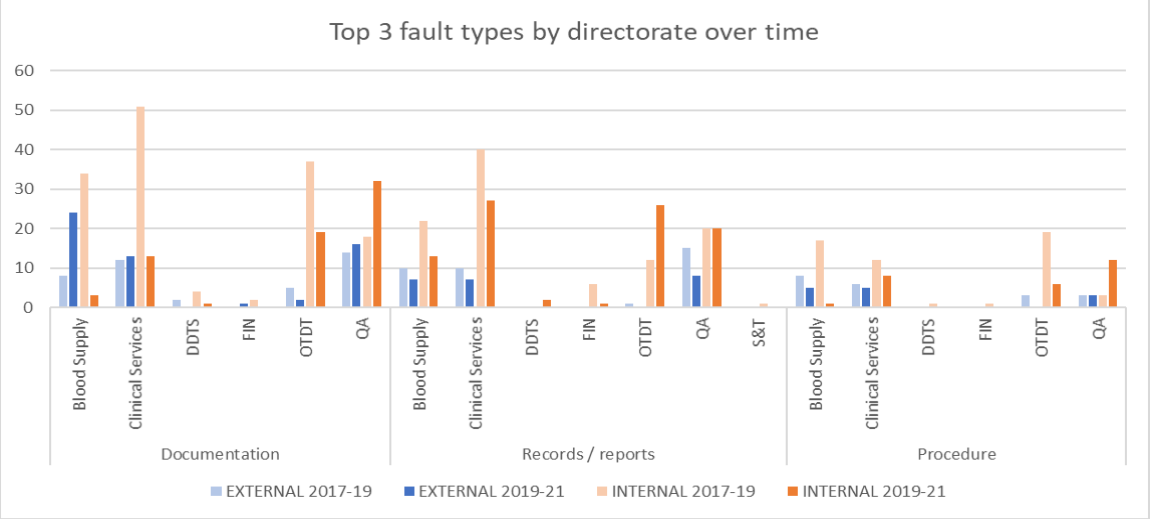


Internal and external findings show a similar profile across both processes and fault type (all audit findings are recorded against the process they impact and the kind of error that has led to the finding), again with more findings in internal inspections

The highest number of audit findings are detected in processes that are common across all areas of the business and are audited in every department at every site. The increase is 2019-21 in internal findings in QA, is due to the increased focus on this area during desktop and remote audits.



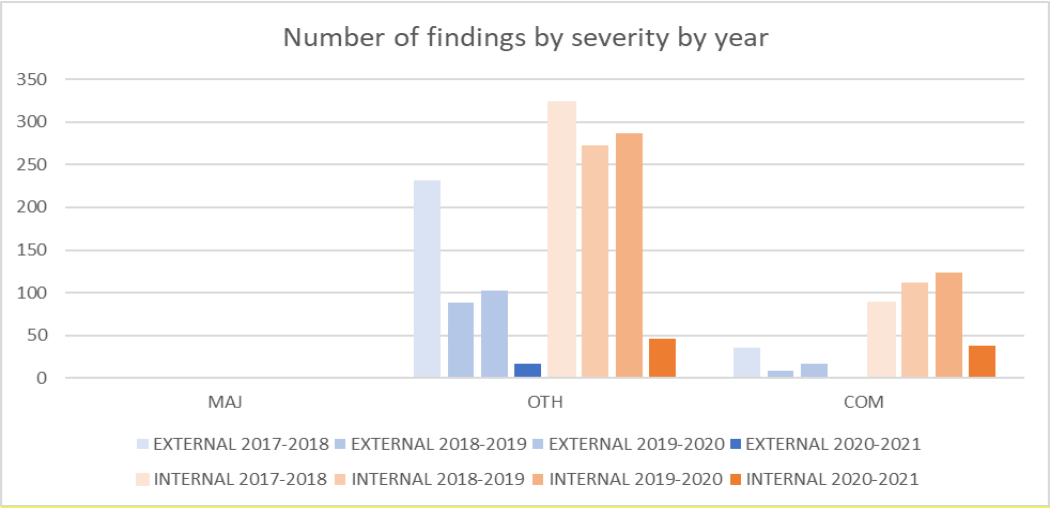
The most prevalent fault types are outlined below and are detected across all areas of the business. Training was in the top 3 during 2017-2019 but has had a sustained drop to 5th place during 2019-21 due to a bigger reduction, (70%) in the number of findings compared with the a 25-40% reduction in other fault types.



Section 2: Accreditation audits

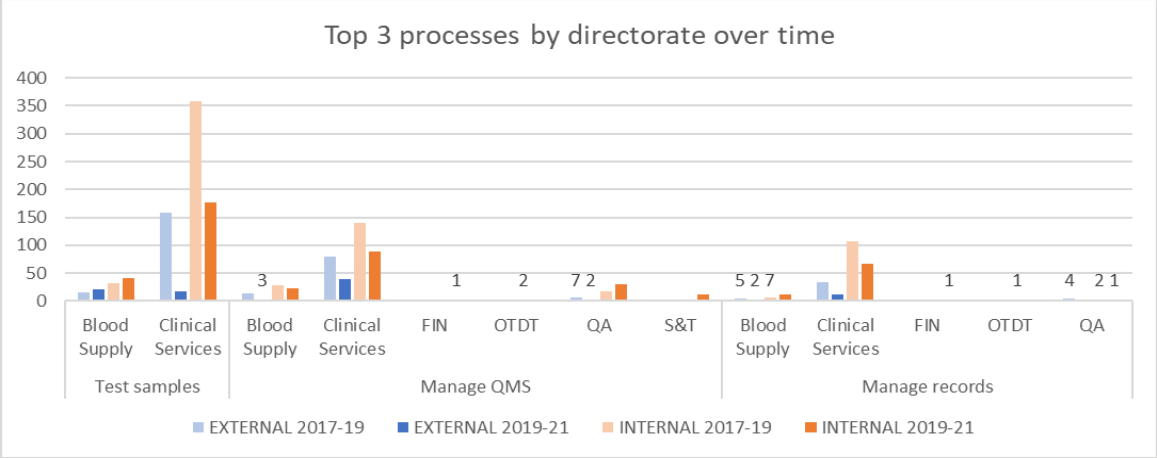
We have again identified more findings internally over the audit cycle than were found by external inspections.

This is to be expected and is consistent with self-inspection being more focused and identifying improvement opportunities which are raised as either deficiencies or comments. This is again good assurance that our internal inspection system if effective.

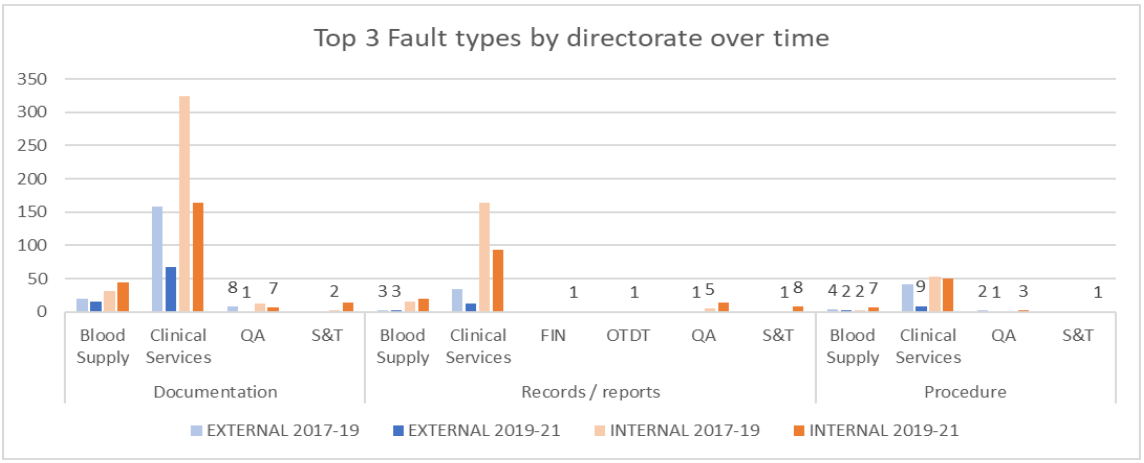


Internal and external findings show a similar profile across both processes and fault type (all audit findings are recorded against the process they impact and the kind of error that has led to the finding)

The highest number of accreditation related audits and findings are against ISO15189 accreditation of laboratory activities; thus, it is not unexpected that the highest number of findings relate to testing of samples within Clinical Services.



The most prevalent fault types are outlined below and are detected across all areas of the business.



Conclusion

NHSBT is legally required to comply with the Blood Safety and Quality Regulations (BSQR), Tissue Quality and Safety Regulations (TQSR) and Organ Quality and Safety Regulations (OQSR).

To comply with these regulations, we must have a Quality Management System (QMS), a key part of which is the self-inspection process. **This report shows strong correlation between internal and external inspection findings,** as expected, which provides assurance that our self-inspection process is effective, and we are meeting our legal obligations.

Self-inspection provides a continual source of information for continuous improvement to take place, with the aim of reducing repeat events and avoiding event wherever possible. The top three fault types are the same for external and internal findings because they are common across all areas of the business and are audited in every department at every site.