

Review of the COVID-19 data compared with historical data to support future service design and understanding of the unscheduled care pathway for NHS Scotland

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1. Who is this document for?

This Paper has been drafted by the ‘**Data and Monitoring**’ working group as part of the ‘Redesign of Urgent Care’ Initiative and is intended for internal management information purposes. We are grateful to a number of stakeholders for their contribution and comments.

2. Background:

For a number of years NHS Scotland has been under pressure to manage increased system-wide demands for unscheduled care on a background of workforce pressures. Whilst challenging, the advent of the COVID-19 pandemic, has provided an opportunity to reappraise how we respond to these demands, and how we can capitalise on some of the innovative solutions that, through necessity, emerged during the pandemic. As services begin to normalise, in-depth analysis of service provision and outcome data will help establish effective interventions and structures, and to prioritise and support system functions now and in the future. The importance of looking at the data in depth must not be underestimated and further work will be required.

This paper analyses the COVID-19/non-COVID-19 demand pathway data through the pandemic months (1 March – 31 May), compares with historical data and indicates the most recent data as necessary. The paper is designed to support monitoring of change across the whole health and care system to drive improvements and reduce unwarranted variation, with the goal of improving patient experience and outcomes.

From the onset of the COVID-19 pandemic, there was clear public messaging around self-management and use of NHS 111 services to avoid face-to-face contact where possible and minimise the potential impact on pressurised emergency care services. The data over this period at a high-level, showed activity was generally reduced or static across the healthcare system, except for NHS Inform website, NHS 111 (including COVID-19 activity) and ICU demands, which increased. There were no specific disease categories which resulted in a major shift in contacts or presentation; where reduction in demand was seen, this was evident across all diagnostic groups. For age and gender, while the demand profile for each individual service (e.g. NHS 111/ED attendances) was similar to historic contact/attendance, the patterns of use remained different for each of the services. For example, the demand profile for children is and was different between NHS 111 and ED, with children being a major component of total ED attendances. Interestingly, paediatrics saw the largest percentage reduction in ED attendances and admissions, with a slower recovery. This will require further investigation and ongoing monitoring as services are redesigned. Mental health and associated services are an important aspect of unscheduled care and mental health related attendances dropped (but to a lesser extent) during the initial COVID-19 phase but also recovered quickly. Going forward with service redesign it will be important to ensure that sociodemographic factors are understood in relation to access and outcomes including Black, Asian and Minority Ethnic (BAME) groups and those with disabilities.

At a high level, this paper identified the need for greater integration of data services across Scotland to help inform strategic planning and monitor the impact service redesign. There are specific service data sets which must be made more accessible and/or improved to enable this to happen. For example, an improved understanding of General Practice In-Hours and Community services is necessary. In addition, the redesign of urgent care will have an impact on patient flow across the whole system. The current measure which reflects this pathway is the 4-hour emergency access standard. It is likely that any proposed redesign will have an impact on flow, as well as altering demand across the whole patient journey. The potential impact on the 4-hour access standard is the subject of a separate paper.

Version: V1.0

Topic: Review of the COVID-19 data compared with historical data to support future service design and understanding of the unscheduled care pathway for NHS Scotland

Date: October 2021

3. Data Quality and fitness for purpose

The data included in this paper have been taken from national sources of data that are routinely submitted to Public Health Scotland or Scottish Government by NHS Boards. There are a number of products available from Public Health Scotland which provide up to date data to allow oversight and monitoring the system, this includes System Watch, Discovery, COVID-19 dashboards and weekly COVID-19 Statistical Publication.

Scotland in general has access to high quality data; however, this exercise has highlighted some areas where there are data gaps, variations in timeliness of reporting or other data quality challenges including data recording, availability and usability; assessment of data quality is described in Appendix 1. To aid in identification of data issues, a live data inventory document is being developed, stating the source used (e.g. person level which for example allows socio demographic analyses) and noting any data quality issues. This should help create transparency of available data across the system and ensure data gaps are addressed. Of note, the data across the pathway does not explore case complexity, e.g. illness severity and co-morbidities.

Recommendation: Data

All data must be fully compliant with information governance legislation and ethical requirements.

- Improving ‘**data availability, data quality and data utilisation**’, ensuring value is extracted across multiple demographics to help improve clinical care delivery and identify important data gaps
- In addition to patient-level data, an essential development must be the ability to better understand the entire unscheduled care pathway routinely to assess changes including improvement and unintended consequences, as close to real time as possible. This will require inter-organisational linking of data sets to ensure read-across different specialties, disease and symptom-specific pathways with better understanding of critical interdependencies
- Develop new pathways and improve existing and new pathways, where **IT Systems and data sets** are adapted to drive optimal patient care provision, which:
 - Must be inter-operable i.e. linking of multiple IT systems (a move towards a ‘single-system’) which ‘talk to each other’ and ensure secure transfer of patient information in a timely manner
 - Must ensure that, for both existing and new pathways, national data definitions and standards are agreed and implemented to provide consistent and comparable data for monitoring and improvement at local, regional and national level
 - Must ensure data is collected and recorded accurately to ensure equitability, including sociodemographic and additional needs
 - Ensure data is supplied in a timely manner, so it is useful and allows as close to a near-time assessment as possible, to enable service adjustments
 - Data must be appropriately validated and cleaned
 - Ensure metadata is available for all the data sources, which explains their purpose and limitations
 - Operationalise data utilisation at a local and regional level into daily working patterns to support improvement and manage demand effectively
- Ensure existing datasets are amended where necessary and new required national data definitions when developed capture information to monitor changes in pathways and across whole system
- Ensure data is used optimally, at a whole system, board and unit level, to help drive continuous improvement in a transparent and efficient way, and aids service provision planning
- Capture and integrate additional data sets including GP In Hours and aspects of community care to ensure a whole system approach. This is crucial given the role of community care
- Develop and use the ‘Data Inventory Live Document’ to improve transparency of available data across the system and to ensure data gaps are addressed
- If these recommendations are implemented, this provides the opportunity to automate systems and reduce workload at a national and regional service level.
- Recognise the interdependencies of the planned care and urgent care systems, particularly in relation to shared resources (e.g. imaging, intensive care etc.), and ensure integration across the whole system

During the three-month period of the main analysis, parts of the health and care system experienced significant pressure, particularly at the peak of the pandemic, whereas other areas had similar or reduced demand, including the planned reduction in non-urgent planned care (in-patient, day cases and outpatients). The planned reductions created capacity and allowed temporary re-mobilisation of staff to areas of greater demand or need. New

pathways of care were created to help triage, diagnose and treat COVID-19 patients. Going forward, analysing structures that worked in respect to demand and demographics, will allow the Scottish government to better monitor a second wave in Winter 2020/21, as outlined by the Academy of Medical Sciences. The additional challenge will be providing planned care services, to re-balance the system, reduce backlog and potential harm due to delays in care by prioritising specific planned care pathways based on need. Moreover, it is important to ensure care is equitably delivered across demographic groups, some of whom were adversely affected during the pandemic as highlighted by the impact on BAME populations. This and other sociodemographic outcomes will continue to be monitored and will also require an understanding of remote, rural and island services, recognising their importance for health and care within Scotland.

The 'Redesign of Urgent Care' Initiative, Workstream 1: Data and Monitoring Working Group has collated data, where available, from across the health and care system to obtain a 'picture' of the whole system and also identify data gaps. The group created an infographic to show the Service Demand in the Scottish Healthcare System (Fig 1) for the period 1st March – 31st May. This period allowed for understanding of the COVID-19 period specifically, as data becomes more diluted in June and July, making interpretation more difficult.

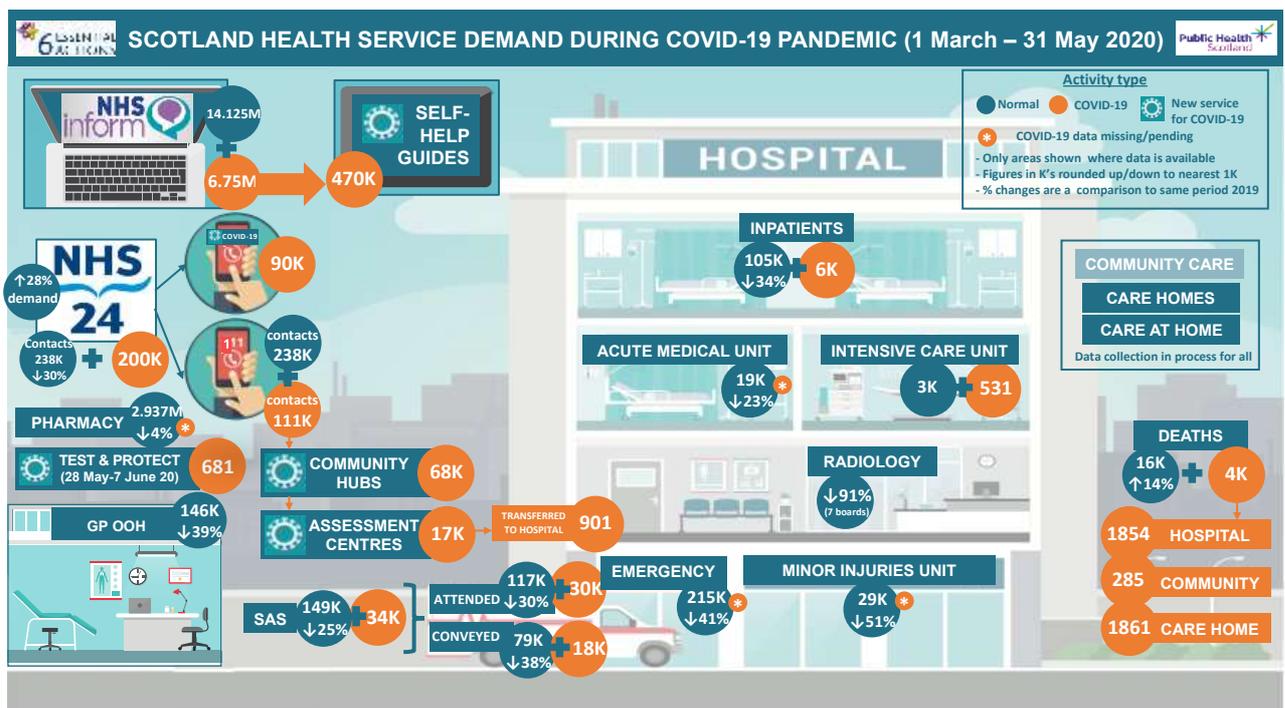


Figure 1: Scotland Health Service Demand during COVID-19 Pandemic (1 March – 31st May) (A larger graphic can be found in Appendix 2).

A clearer view of the gearing effect (in terms of numbers passing through each service; not a direction of flow) of the whole health system can also be seen in Fig 2. GP In Hours figures are not routinely available, however estimate for all GP In Hour contacts account for approximately 25 million episodes per annum.

The Gearing Effect

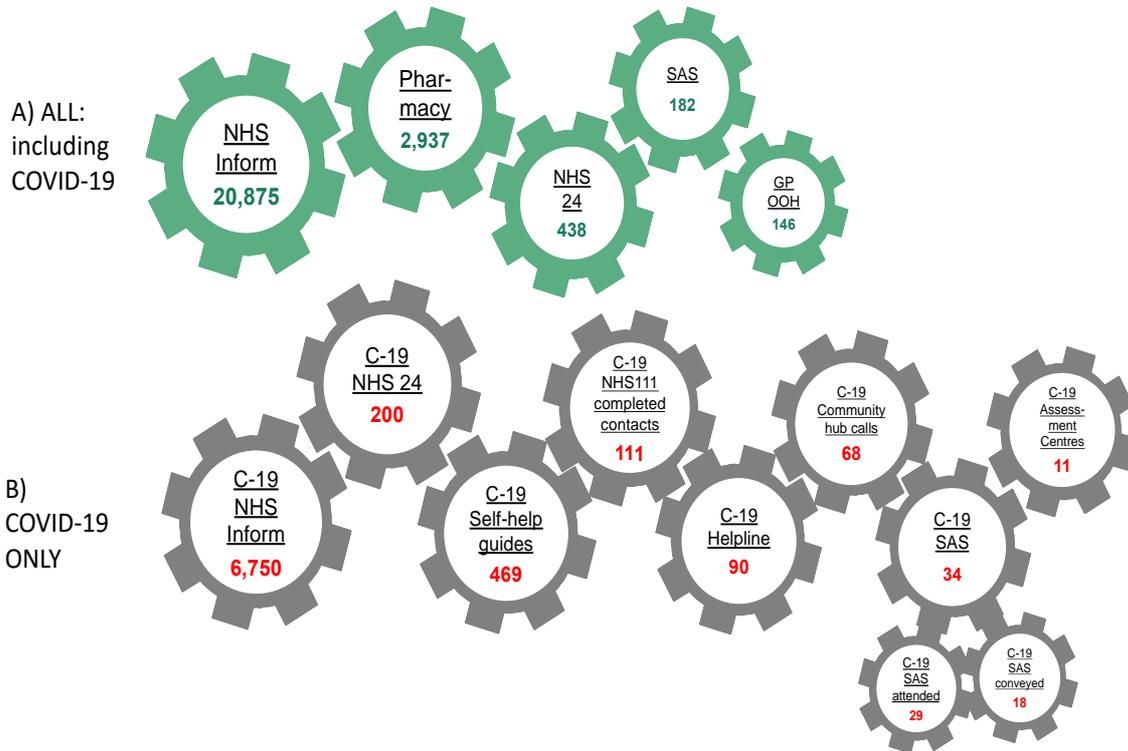


Figure 2: Gearing Effect Diagrams: 1: All contacts including COVID-19, 2: COVID-19 only contacts. All numbers represent a multiple of 1000.

In the following sections of this paper, data observations with some recommendations for change across the health system are provided. **Data being analysed is for period 1 March 2020 to 31 May 2020, compared to same months in 2019 period, except when otherwise stated.**

4. Section 1: Patient contact services:

a. NHS Inform Website (part of NHS 24)

NHS Inform is Scotland's national health information service, providing the Scottish population with accurate and relevant information to support informed health decisions. The NHS Inform website was the most widely used patient contact service. A total of 20.9 million views were recorded during the three-month period in 2020, of which two thirds were non-COVID-19 and one third COVID-19 related. For the equivalent period in 2019, NHS Inform had a total of 15.9 million unique page views.

The peak number of contacts (2.6 million) occurred during the two weeks ending 22 and 29 March. During this peak, COVID-19 related hits accounted for only 50% of hits. Sociodemographic data for those using NHS Inform is not available, as people using the service do not need to provide any identifiable details. The newly created Coronavirus self-help guides were the most widely used corona-specific patient contact service. Since their launch (week ending 29 March 2020) until May 31, 469,621 were completed, and of these approximately 43% were asked to self-isolate. The peak number of guides (171,563) were completed during the first week.

In addition to the digital channel, NHS 24 (through NHS Inform) offers a general enquiries telephony service which was dedicated to the COVID-19 response. Demand to this special helpline during the period 1st March to 31st May was high (89,710 calls). Additional resource was rapidly acquired through a third-party provider from 22 March 2020 onwards, with NHS 24 continuing to manage the helpline.

NHS Inform continues to develop COVID-19 resources, including the Coronavirus Self Help Guide, most recently to provide some demographic mapping information.

Recommendations: NHS Inform website

- Monitor the use of NHS Inform website for COVID-19 and non-COVID-19 related queries, to promote and increase uptake as this is the most widely utilised resource by the public, and is an effective way to provide public information
- Monitor the use of Coronavirus self-help guides to further promote and increase uptake as an inexpensive yet effective stratification method, which is user friendly as evidenced by this being the most widely used COVID-19 new system structure and supported self-care and self-isolation processes. This can help advise self-isolation for significant proportions of appropriate patients

b. NHS 24 Contacts (111)

NHS 24 is Scotland's national telehealth and telecare organisation. Over the three-month period analysed in 2020, NHS 111 (predominantly an out of hours service) experienced a 28% increase in demand compared to historical values. Peak weekly volumes (circa 60,000/week) were between 9–29 March 2020, where demand doubled compared to 2019. Non-COVID-19 contacts (238,000) had decreased during the period, due to multiple factors including cancellation of Easter Public Holiday period, when traditionally there are an additional 15,000 calls. From 23rd March 2020, NHS 111 moved to provide a 24-hour service for COVID-19 related calls, and subsequently, from July 2020 expanded access to mental health services via the Mental Health Hub to 24 hours also.

On COVID-19 analysis, a demand of 199,812 was seen, with 110,935 confirmed COVID-19 related contacts to the 111 service, of which 27% (29,568) were advised to self-care/no further action. Of this group, 75% of people had no further contact with NHS 24, SAS or ED, 4% were subsequently admitted (just over 1% within 3 days), and total mortality was <0.3% over the three-month period.

Over the same three-month period, of the NHS 111 COVID-19 related calls, the majority of patients (69%) called once, 19% called twice, and a small proportion were repeat callers (mainly from known high users). Two thirds of the callers were female. Consistent with pre-COVID-19 111 user data, the 15-44 age group were the highest number of COVID-19 related contacts. Compared with historic 111 records, there was a 10% increase in 45-64, and a 6% decrease in over 65's age groups.

NHS Greater Glasgow and Clyde, NHS Lothian and NHS Lanarkshire Health Boards had the highest number of COVID-19 records. By Board population calls were highest in Ayrshire and Arran (2,464 records per 100,000 population, Scottish average 2,046 records per 100,000)

Historical activity shows approximately 59% of NHS 111 contacts are referred to GP OOH services, 7% to ED and 5% to 999, with 27% advised to self-care. Of COVID-19 specific contacts (now a single pathway 24hrs), 66% were referred through the new COVID-19

pathway for further virtual consultation at local board level, with 27% self-care and 5% 999. Non-COVID-19 followed the historical pattern.

During the time period, 40% of COVID-19 related mid-week contacts occurred during the in-hours period. For this pathway, activity has shifted towards in hours, now 60%, reflecting a change in pattern compared to historical and COVID-19 period activity.

Recommendations: NHS 24

- Monitor the uptake and use of NHS 24 to develop and promote to improve utilisation for both COVID-19 and non-COVID-19 related contacts
- Monitor the impact of new NHS 24 services and pathways including specific virtual assessment pathways integrated with locally established pathways
- Map demographic NHS 24 data to ED, and hospital data including ICU data to determine whether the groups of patients who ultimately required hospitalisation for COVID-19, or reflect specific concerns
- Measure NHS 24 ability to appoint people to following day assessment with relevant clinical service (greater than 12 hour later appointments), which could help re-distribute demand
- Monitor onward referral rates to include NHS 111 to GP OOH, flow centres, ED attendances and other relevant new pathways e.g. mental health

c. COVID-19 specific activity: Community Hub Calls and Assessment Centres

Following contact with NHS 24, some individuals were triaged to a COVID-19 specific Community Hub phone service with a trained clinician, subsequently some were then passed on to a COVID-19 specific assessment centre for a face-to-face contact and assessment. Community hubs and assessment centres were established week of 23 March 2020. Of the 110,935 COVID-19 calls to NHS 111, the majority (62%, 68,189) were streamed to the Community Hubs, with 25% (17,269) then reviewed face-to-face in the assessment centres (Fig 3), with approximately 1,000 referred on to ED. In all boards over 80% of staffing for the COVID-19 pathway was provided by primary care, with the senior clinical decision maker in most pathways being a GP.

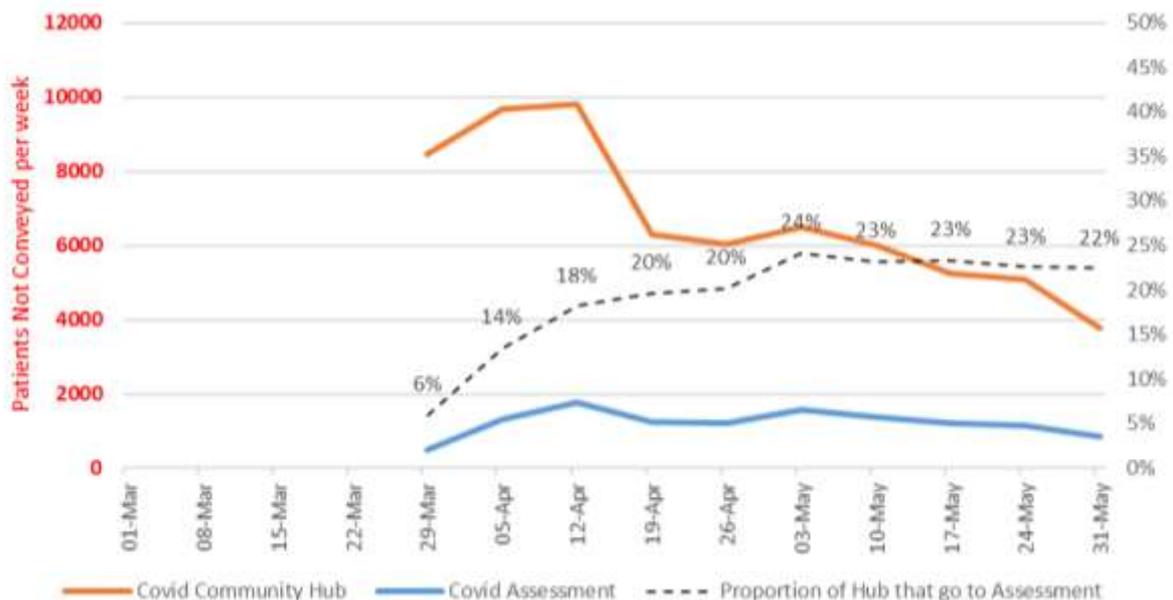


Figure 3: Scotland COVID-19 Community Hub and COVID-19 Assessment Centre Contacts (weekly data) for period week ending 1 March to 31 May. Sourced from Primary Care, provided by PHS

Peak activity for the community hubs was the weeks following their inception after lockdown was announced on 23 March 2020 (10,000 patients per week) gradually falling to 4,000 per week by the end of May. As of mid-September, volumes remain similar, with approx. 4,800 consultations through community hubs and 1,000 assessment centre assessments weekly.

Recommendations: Community Hub Calls and Assessment Centres

- Continue to monitor the impact of community hubs/assessment centres and their services, for COVID-19 activity
- Assess their role for non-COVID-19 activity, as flow centres are developed at board level across NHS Scotland
- Establish data definitions and metrics to assess and monitor processes and outcomes for the population and for specific patient pathways including sociodemographic measures

d. GP In Hours

There are over 900 GP practices across NHS Scotland. This data is not currently routinely available for analysis. This is under review but as estimates of GP attendance in hours are approximately 25,000,000 appointments per annum, including planned and unscheduled care. Onward referral to ED is estimated at approximately 0.3%-0.5% of appointments per annum, based on the 6% of coded primary care in hours ED attendances (80,000 per annum). When GP OOH and GP initiated ambulance transfers are taken into consideration, this accounts for 140,000 episodes per annum (10% of ED activity), with a smaller proportion of patients being directly transferred to inpatient ward areas e.g. AMU. This data is vital to service planning, redesign and monitoring impact of changes.

Recommendations: GP In Hours

All data sharing must be fully compliant with information governance legislation and ethical requirements

- There is an urgent need to have GP In Hours data at a national, board and local level to better understand the unscheduled care pathway, demand and activity for GP In Hours
- Lack of availability of data, severely compromises delivery planning and forecasting demand for services, to include sociodemographic measures and disease specific analysis
- Establish an overarching data intelligence committee with government involvement, with separate workstreams: technical, data quality, data requirement, communications, ethics and governance

e. GP Out of Hours (GP OOH)

There are 14 GP OOH regional services, providing an essential part of the unscheduled care pathway and seeing approximately 1 million patients per annum. Most patients are referred to GP OOH services following assessment by NHS 24 and approximately 20-25% may contact GP OOH through a direct access local number. Access to Greater Glasgow and Clyde GP OOH changed on 1 June, to an appointment-only service, having previously

accepted walk-ins. Between 1 and 2% of patients seen by GP OOH services are referred to ED.

Over the three-month COVID-19 period, GP OOH contacts (individual patients) fell by almost 40%, from 238,819 in 2019 to 146,319, whereas overall consultations fell by approximately 27%. No specific categories of patients were identified as not attending from the data. GP OOH total activity based on the number of consultations is as of September close to historical activity. GP OOH contacts (individual patients) are currently 2/3 of historical activity, however if community hub activity (individual patients) is taken into account then total activity is similar to overall historical values. This is important contextually, as GP OOH staff provide the majority of staffing (over 80%) for the community hubs.

Going forward there are recognised workforce challenges if the GP OOH services wish to retain their current service offer and develop improved services for recognised need. Pathways where they can provide most value and not a service by default. They wish to see improvement in the paediatric, mental health, frailty and end of life care as highlighted in the Report of GP OOH services. Musculoskeletal is another area which the data suggests may be of benefit, as it shows that the majority of people who self-refer to A&E are attending because of sprains and back pain.

Data suggests a major increase in re-direction from ED to GP OOH services, would have an impact on GP OOH services and similarly, if NHS 24 increased their call rate and maintained or have a high onward referral to GP OOH, this would create significant pressures given the recognised workforce challenges.

Recommendations: GP Out of Hours (GP OOH)

- Understand the impact of service redesign and reconfiguration on GP OOH demand from NHS 111 and ED redirection, recognising the significant workforce challenges within the GP OOH service. Unintended consequences such as increase in demand or workforce depletion related to redeployment must be considered
- Explore the potential benefits of NHS 24 having access to scheduling appointments in out of hours period to next day urgent appointments in primary or secondary care, as this may in part reduce GP OOH demand. Clear data definitions will be required to monitor any impact

f. Scottish Ambulance Service (SAS)

SAS provides a vital service for the population across the unscheduled care pathway but in particular for those requiring more immediate care. SAS deal with approximately 800,000 unscheduled care incidents per annum based on historical data of which 650,000 are emergency incidents and the remainder are non-emergency (e.g. GP urgent transport requests). Of the total emergency SAS contacts (650,000), 60% of patients are transferred to ED. Of the remaining 150,000, 57,000 were transferred to ED and a similar number directly to other inpatient facilities.

During the three-month period March to May 2020, SAS contacts were broadly similar with a small decrease in unscheduled demand from 197,951 to 182,068 (18% were suspected COVID-19 related). Through increased virtual consultations (telephone) SAS attended fewer calls (down 12%, from 165,818 to 146,440) and when they did attend, conveyed less to hospital (24% less, from 126,509 to 96,601) For the attended cohorts, suspected COVID-19 patients made up about 20% of the individual case mix and 18% of the conveyed cohort. Over a year, if this pattern of reduced transfers was maintained, this would lead to a

reduction of transfers to ED from 61% to 49%, equating to a reduction of approximately 70,000 patients per annum to ED. As of 13th September, total SAS contacts are now similar to historic values.

Recommendations: SAS

- Continue to monitor virtual assessment processes and assessing at scene without conveyancing including onward referral rates and clinical outcomes
- Establish metrics to assess and monitor processes and outcomes for the population and for specific patient pathways including sociodemographic measures
- Build in data processes to integrate with whole system view as SAS continues to develop and expand specific virtual assessment pathways including new disposition pathways for patients e.g. MIU or mental health assessment centres where locally available

g. Community Pharmacy

Around 94% of the population in Scotland access Community pharmacies at least once per year, with an estimated 600,000 people accessing them each day. E-prescribing is the number of scripts written for each medication, and e-dispensing relates to the number of medications dispensed.

i. E- prescribing

When GP’s or pharmacists prescribe electronically, an e-prescribing message is generated. This captures the vast majority of prescriptions in Scotland; a small number may not be captured e.g. nurse-prescribing. There was an 8% increase in e-prescribed items in the three-month 2020 period (25,812,536) compared to 2019 (23,922,345) (Fig 4). In the last two weeks of March 2020 an increase in e-prescribing rising to 2.7 million items per week, normally 1.8m. Since then volumes are slightly lower at around 1.7m.

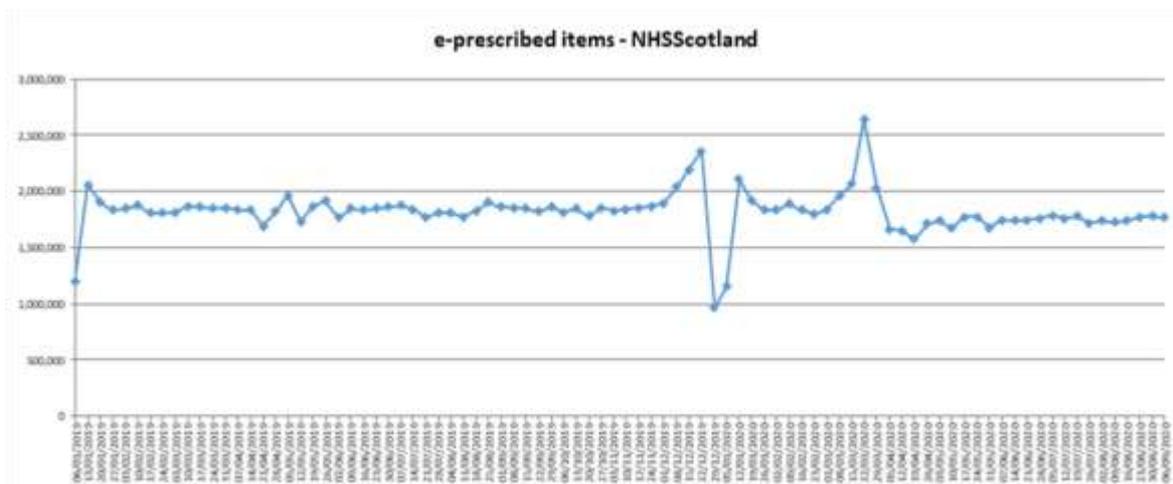


Fig 4: E-prescribed items in Scotland January to September 2020

ii. E-dispensing:

Similarly, the volumes of claims for e-dispensing by pharmacies increased by 9% in 2020 (25,289,060) compared to 2019 (23,169,218) (Fig 5). In the last two weeks of March 2020 there was an increase in e-dispensing rising to 2.2m items per week compared with normal

weekly levels of around 1.8m. Currently, volumes are 1.7m. Noted pharmacies did not dispense and claim for all items prescribed in March for reasons including delay in patients picking up items, or pharmacists adjusting dispensing processes in order to preserve stock availability key lines e.g. inhalers.

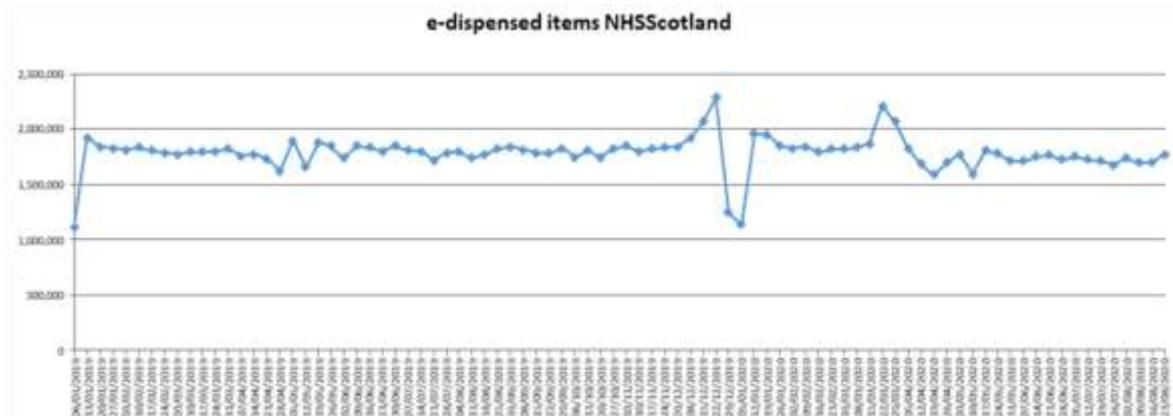


Fig 5: E-prescribed items in Scotland January to September 2020

NHS Pharmacy First Scotland is an NHS service provided by local community pharmacies, which on 27 July 2020 amalgamated and replaced the Minor Ailment Service, treatment of impetigo and uncomplicated urinary tract infections in women 18-65 years. NHS Pharmacy First provides all Scottish citizens access to a consultation from a pharmacist, which can provide advice (including self-care), or refer to another healthcare professional for treatment or assessment. Data for week ending 9 August shows that nearly 30,000 items were supplied through NHS Pharmacy First Scotland, advice only approximately 3,800 times, with 1,500 onward referrals.

After a test of change, NHS 24 also offered prescriptions during the three-month period, predominantly related to dental conditions, and totalling 838 prescriptions. This service continues with dental prescribing being predominant.

Recommendations: Community Pharmacy

- Ensure as Pharmacy First evolves:
 - Onward referral data is collected and analysed, including to GP IH, GP OOH, flow centres, ED
 - Data in relation to major diagnostic categories is collected and analysed

h. COVID-19 Test & Protect

The Test and Protect initiative came in toward the end of the overall analysis period. The service saw a total of 681 contacts in its first week of running since inception on the 28 May 2020. From the period 28 May to 16 August, a total of 2,570 cases were positive, and therefore went through Test and Protect. 2,453 of these completed contact tracing with 1,835 of these individuals tested positive. Through the National Contact Tracing Centre, as of 16 August, a total of 7,449 contacts were traced.

The service continues to develop and will be potentially a crucial part of the whole system going forward, likely to evolve over time as more rapid testing capability is introduced. This data should be part of the data set. This is likely to include testing for other viruses in

particular flu A, flu B and RSV. Demand modelling of Test and Protect estimates a current daily demand of 24,000.

Recommendations: Test & Protect

- To monitor progress and impact of the Test & Protect programme

5. Section 2: Acute/Secondary Care:

Acute/Secondary care includes ED attendances and admissions (including MIU and ambulatory care), acute medical/assessment units, intensive care units and radiology. In the acute services, some areas experienced increased demand, while others activity remained stable or reduced, over the COVID-19 period and historical data. Acute/Secondary care demand has nearly normalised, with hospitals now returning towards pre-COVID-19 emergency attendances, admissions and occupancies. We have not looked at complexity of data mix.

a. Emergency Department (ED) attendances

There are 30 Type I ED's across Scotland, which on average see 1.4 million attendances. The historical annual breakdown of attendances is: 60% self-presenters, 22% by SAS, 5% through NHS 24, 6% through GP In Hours, 1.5%-2% through GP OOH and approx. 5% other. Of the 60% self-presenters (860,000), two thirds classified as minor emergencies (Flow 1). During the peak COVID-19 period, 2/3 of self-presenting patients were still classified as minor emergencies and as such remained a large proportion of ED attendances. 999 calls were relatively stable but, as attendances fell more patients overall were 999 presentations, reaching a peak of 1/3 of all attendances.

Specifically, over the three-month period analysed, there was a 40% reduction of ED attendances (215,422 vs 363,493). The lowest week was w/e 29 Mar where attendances dropped by 60% (Fig 6). In terms of specialty/disease specific analysis, there are significant data limitations, with 30% of ED clinical coding being not known/other, which increased to 50% during the COVID-19 pandemic. Taking coding into consideration, there was a reduction across all major speciality groups including cardiovascular, gastroenterology, psychiatry etc. Respiratory presentations were also reduced however COVID-19 coding was introduced on the 22 February.

Since April, a slowly increasing demand trajectory for ED attendances and admissions is evident. As of 13 September, attendances are at 81% and admissions at 99% of historical baselines (Fig 6).

Of note, paediatric attendances dropped more markedly to 33% compared to 2019 figures. Paediatric attendances recovered more slowly over the period, and as of 13 September, attendances are approximately at 73% of historical values.

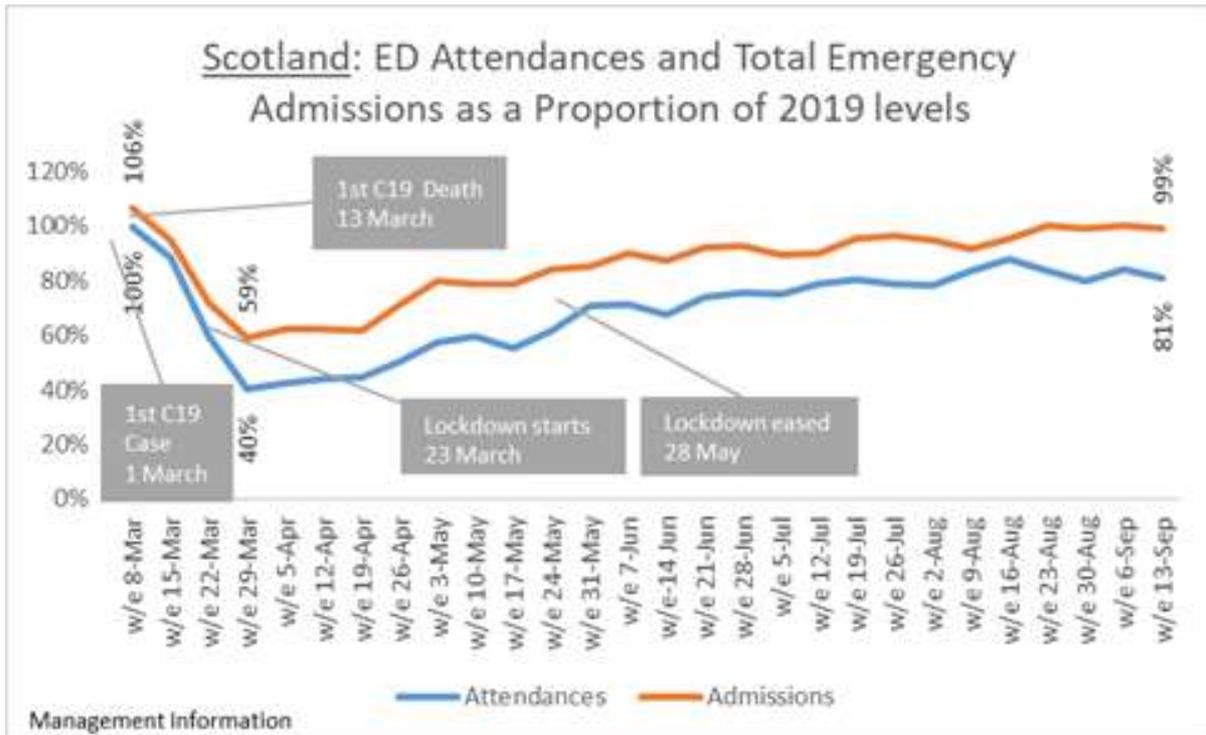


Figure 6. Scottish ED Attendance and Total Hospital Emergency Admissions as a proportion of 2019 for adults and children

b. Sociodemographic data for ED attendances: age & gender

Attendances were reduced across all age bands and major presenting conditions from March 1, 2020. Children under 5 had greatest reduction in attendances by age and the slowest recovery. As age increases, the closer the figures were to seasonal historical data, with over 75’s attendances reaching 80% by end of May compared to previous year.

Psychiatry attendances showed a lower reduction compared to other specialities.

Recommendations: Emergency Department

- Improve quality of clinical coding including the use of the COVID-19 ICD-10 code
- Investigation into ED arrival patterns (taking into consideration ED department size and timing to leave department) to assess the impact of a prioritisation scheduling system for ED
- Further in-depth analysis of emergency data is required to explore new pathways
- Investigate and monitor reasons for the more sustained paediatric attendance reduction, and assess related outcomes

c. Minor Injury & Illness Units (MIU)

There are 64 MIU units in Scotland, which have a variety of operating local models in place. Overall, MIU attendances fell by 49% over the three months compared to 2019 and pattern is very similar to ED attendances for Flow 1 (minor injury/minor illness), with a slowly rising trend throughout April and May. As of week ending 13 September, levels are at 72% of historical figure for 2019 (Fig 7). Of note, NHS Lothian have been using Near Me consultations in MIU, accounting for circa 6% of MIU attendances.

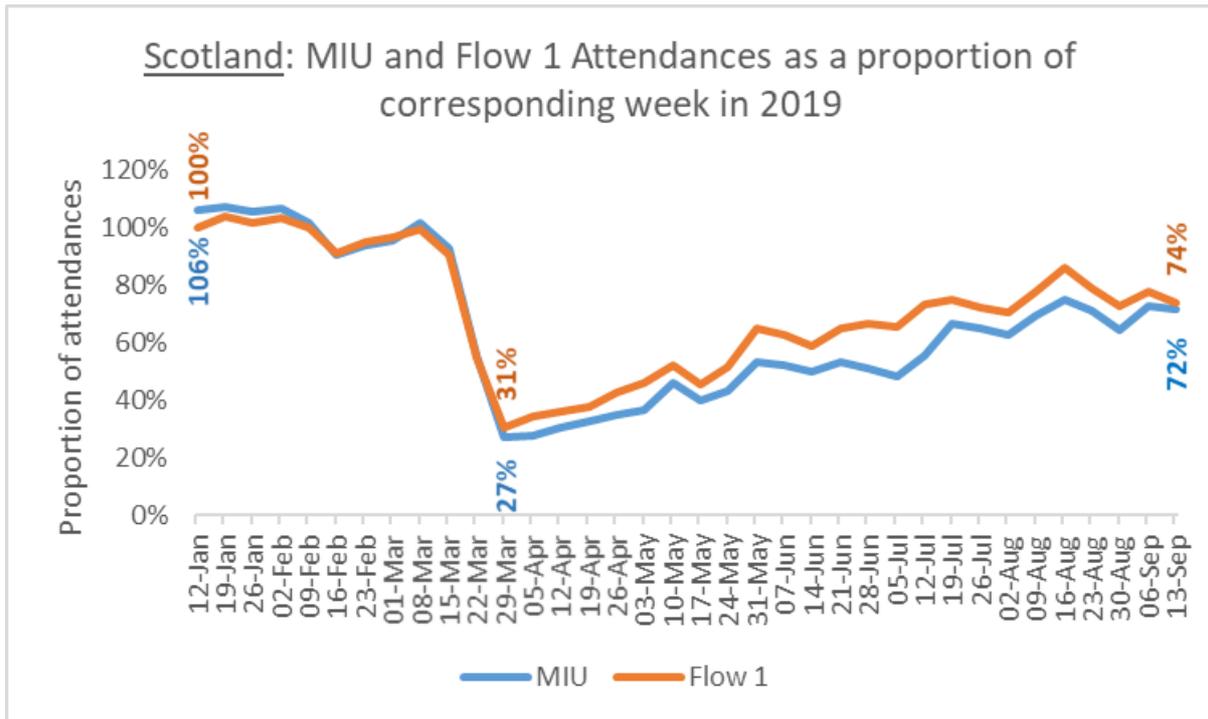


Figure 7: MIU and Flow 1 attendances as a proportion of corresponding week of 2019

Recommendations: Minor Injury & Illness Units (MIU)

- Improve quality of clinical coding in MIU including patient level data and service type (e.g. patients who required diagnostic services e.g. imaging and laboratory services).
- Using the data, better understand the role and function of MIU & Illness services in Scotland in relation to services provided, clinical outcomes, as part of the whole system response;
 - Include interaction with NHS 111, SAS, GP IN/OOH and ED.
 - Ensure remote, rural and island settings are included, given their important local functions
- By utilising whole system regional data, consider the potential to enhance the services offered by Minor Injury/Illness Services in relation to population need
- Monitor and analyse Near Me’s role in supporting the unscheduled care pathway through Minor Injury/Illness Services to aid in service re-design

d. Ambulatory Emergency Care

It is not possible from national data, to comment on Ambulatory Emergency Care as there are data recording issues. This reflects both clinical coding and use of consistent geographical code for Ambulatory Care services which is currently inconsistent. This is an area of potential growth to reduce hospital length of stay and in a proportion of patients avoid overnight admission.

Recommendations: Ambulatory Emergency Care

- Agree principles and diagnostic groups for Ambulatory Emergency care
- Urgently address need for clinical coding, recording quality data gaps for Ambulatory Care to ensure consistency across all NHS Boards
- Ensure all boards are using the same geographical code for Ambulatory Emergency care services
- Agree outcome measures for Ambulatory Emergency care services including duration of treatment, unscheduled reattendances or emergency admissions

e. Acute Medical/Assessment Units (AMU/AAU/ASU)

A decrease in patients of 33% was seen across Acute Medical Units, from 28,438 in 2019 to 18,965 in 2020. In this data it is not possible to distinguish between COVID-19 and non-COVID-19 activity. Though there is an existing National Code that can be used to identify Acute Assessment Unit activity, only half of the NHS Boards currently use it and it is not being applied consistently across Scotland.

Recommendations: Acute Medical/Assessment Units (AMU/AAU/ASU)

- Ensure compliance with national coding for Acute Medical/Assessment Units (AMU/AAU/ASU) going forward
- Agree, collect and analyse relevant outcome metrics for all Acute Medical/Assessment Units (AMU/AAU/ASU) including reattendance, readmissions and mortality rates
 - Understand role of AMU's in COVID-19 and Non-COVID-19 activity especially in the context of future waves

f. Emergency Admissions through ED

Overall, admissions followed a similar pattern to attendances during the COVID-19 period, falling to 59% of seasonal 2019 figures at the end of March, showing a steady rise since April and reaching 100% of seasonal 2019 figures by the week ending 23 August (Figure 6).

Medical admissions have already recovered to pre-COVID-19 admission levels. For w/e 13 September, medical admissions were 96% of the corresponding week in 2019 (Fig 8). Surgical admissions have recovered more slowly and are now at 81% of 2019 levels. Paediatric admissions dropped more markedly to 29%, compared to 2019 figures and have recovered more slowly with week ending 13 September admissions at 67% of last year's figures. This difference needs further exploration. Paediatric admissions through ED remain lower but overall admissions appear to have recovered; this may suggest they are being admitted via medical assessment or other routes.

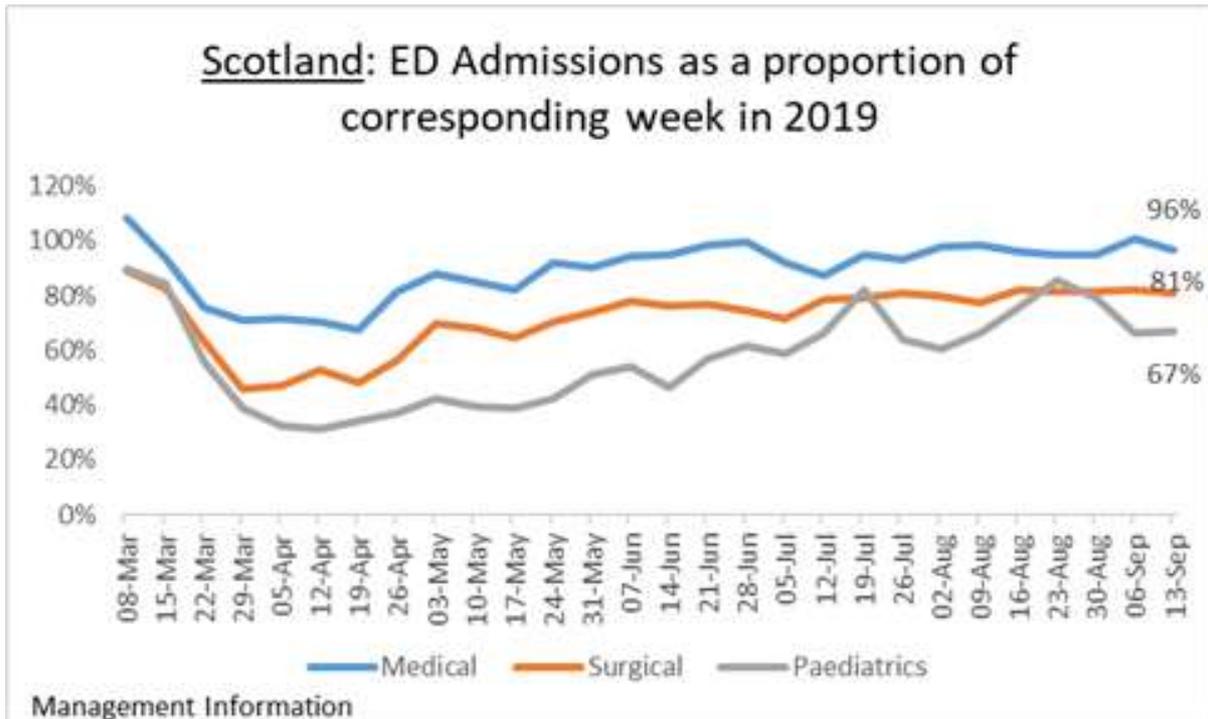


Fig 8: ED Admissions (medical, surgical and paediatrics) as a proportion of corresponding week in 2019

Recommendations: Emergency Admissions

- Continue to monitor paediatric admissions and assess related outcomes including any long-term impact
- Monitor the regional impact of attendance-admission ratios as a measure of whole system flow.
- Monitor mortality rates and other measures including readmission rates.

g. Emergency Inpatients

Emergency inpatient numbers fell by 30%, from 159,853 to 111,159. Of note, only 5,773 (5%) were COVID-19 patients indicating that the vast majority of ongoing emergency inpatient care was non-COVID-19 related. However, the 5% of COVID-19-related inpatients were likely to have had a longer length if admitted. SMR01 data can often take up to 3 months due mainly to the time it takes to clinically code each record; hindering ability to monitor process and clinical outcomes closer to real time. System Watch is a tool that used by NHS and Local Authorities. It includes a variety of information which can be used to understand activity and demand by time of day, and it provides prediction data for admissions to hospital. It provides information at National, Regional and Local level for services e.g. hospitals and HSCP's (Health and Social Care Partnership) and includes dashboards which focus on supporting information to inform urgent care services e.g. syndromic surveillance, monitoring respiratory calls to NHS 24, COVID-19 pathways, delayed discharges. The tool is updated both daily and weekly depending on the source data.

Recommendations: Emergency Inpatients

- Ensure boards complete and submit SMR01 data within 6 weeks to PHS
- Monitor COVID-19 and Non-COVID-19 activity and outcomes across disease and socio-demographic groups
- System Watch provides more real time data and going forward there is an opportunity to use this more effectively to explore whole system data

h. Delayed Discharges

Delayed discharges more than halved in April and May 2020 compared to seasonal 2019 data. These are rising once again in the coming months, as hospital admissions return towards historic levels patients. From the 4th March to 6 September a 36% reduction (from 1612 to 1036 delayed discharges) was seen (Fig 9). The highest reduction was seen in April, w/e 15, where delayed discharges were down to 591. The Scotland National Day of Care Survey in October 2018 showed 21% of patients did not meet criteria to be occupying an acute hospital bed.

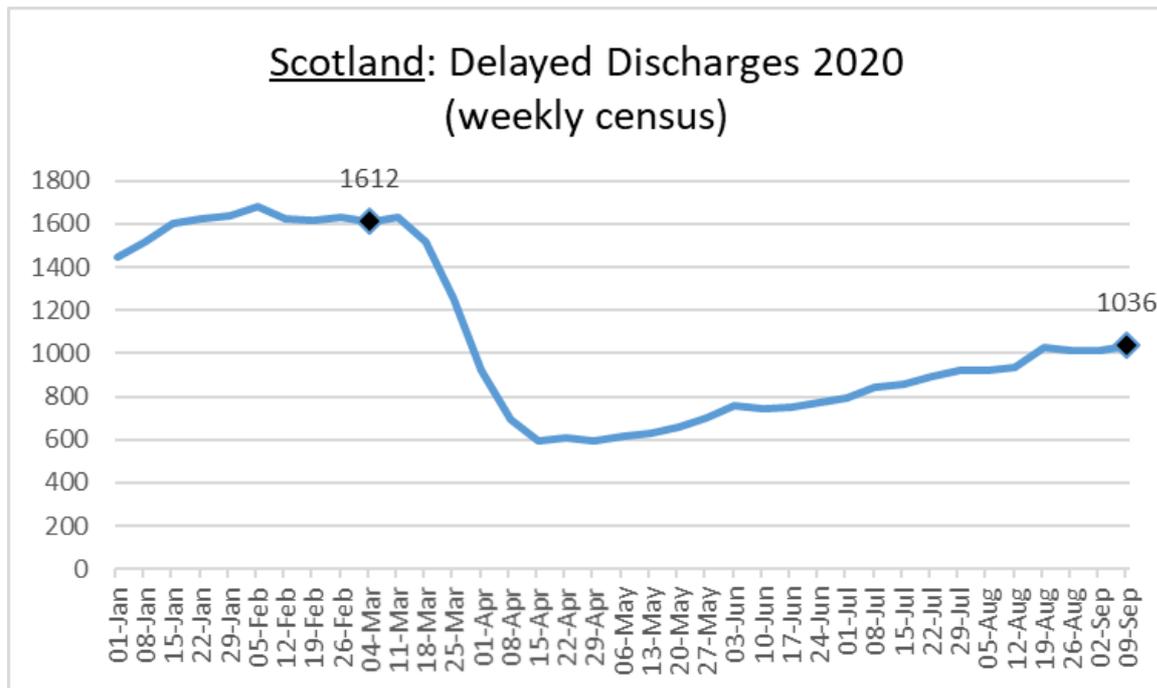


Fig 9: Delayed discharges in Scotland

Recommendations: Delayed Discharges

- Need to link discharge data more effectively to community to determine process and clinical outcomes
- Improve recording of discharge destination from secondary care, community care including hospital at home
- Improvement of discharge processes through utilising available Scotland Day of Care Survey (DoCS) data to: 1) identify patients earlier who are younger and/or earlier on in their journey and 2) target top reasons for patients not meeting criteria for occupying an acute hospital bed, in order to avoid build-up of delayed discharges

i. Critical Care: Intensive Care and High Dependency Units

Critical Care capacity was increased during the COVID-19 period, extra beds were created for both Level 3 Critical Care (Intensive Care) and Level 2 (High Dependency) to meet the escalation of care some patients required. Staff were mobilised from other areas to support the increased demand.

In total, ICU capacity was doubled from 180 to 370 beds to allow for COVID-19 patients in need of ventilation, but this capacity was never reached with peak demand for critical care beds reaching approx. 280. Definitive plans for further escalation were also in place for both ICU and HDU. High Dependency Units, theatres, recovery areas and general wards were repurposed. At the peak in mid-April, 205 beds were occupied by patients confirmed as COVID-19 positive. Of note, there were 531 COVID-19 patients from a total 3,046 intensive care patients in ITU/HDU over the three-month period. This means that non-COVID-19 were the largest group but with a shorter LOS overall. COVID-19 patients had a longer stay, with an average of 14 days. Continuing ICU demand modelling is required going forwards, especially as COVID-19 patients made up only 1/6 of all ICU patients. As at 16 August 2020, 535 confirmed COVID-19 patients have been treated in an Intensive Care Unit.

The increased demand on Critical Care has a secondary effect on theatres through use of theatre staff in critical care, use of theatres and recovery areas for critical care space and lack of critical care capacity to meet elective and emergency surgical care.

Going forward, this highlights the need to be able to preserve non-COVID-19 pathways, while recognising the need to maintain extra capacity.

Recommendations: Intensive Care and High Dependency Units

- Continue to utilise the daily Scottish Intensive Care Society Audit Group (SICSAG) data to;
 - Inform clinical and managerial planning (including data on invasive ventilation, non-invasive ventilation, renal support)
 - De-lineate thresholds for escalation of HDU and ICU capacity
 - Allow national overview of available capacity
 - Facilitate decisions regarding board mutual aid if required
- Recognise the critical balance/inter-relationship between COVID-19 and non-COVID-19 pathways in ITU with the view to minimize the impact on the elective need for ITU to maintain quality care. Link to the elective care demand prioritisation pathways workstreams

j. Operating Theatres

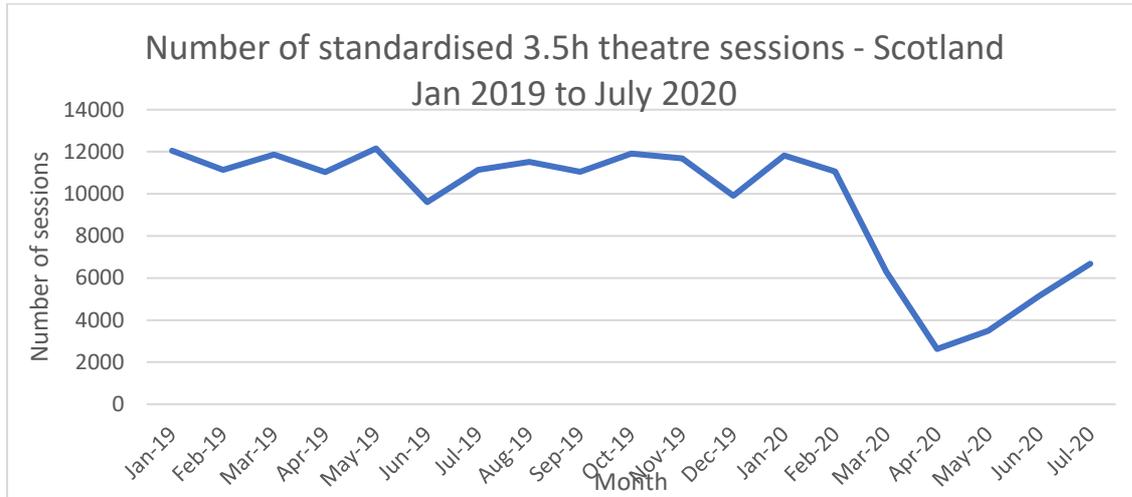


Fig 10: Number of standardised 3.5-hour theatre sessions in Scotland Jan 2019-July 2020

During the initial COVID-19 period there was a profound impact on the number of standardised Operating Theatre sessions delivered, with an 80% reduction in available capacity. Data to date shows a slow recovery, and that there is some variability in terms of impact and speed to recovery.

Due to the need to preserve emergency surgical care the actual impact was borne overwhelmingly by elective services. The figure below shows the actual hours of theatre sessions by planned and emergency against a baseline. It can also be seen that the hours required to meet the emergency workload has grown due to the increase in time required to provide safe care due to the addition risk brought by COVID-19. This is also the case for planned theatre lists. Therefore, elective case capacity is less than the pre-COVID-19 baseline, due to both fewer elective sessions and fewer cases per list.

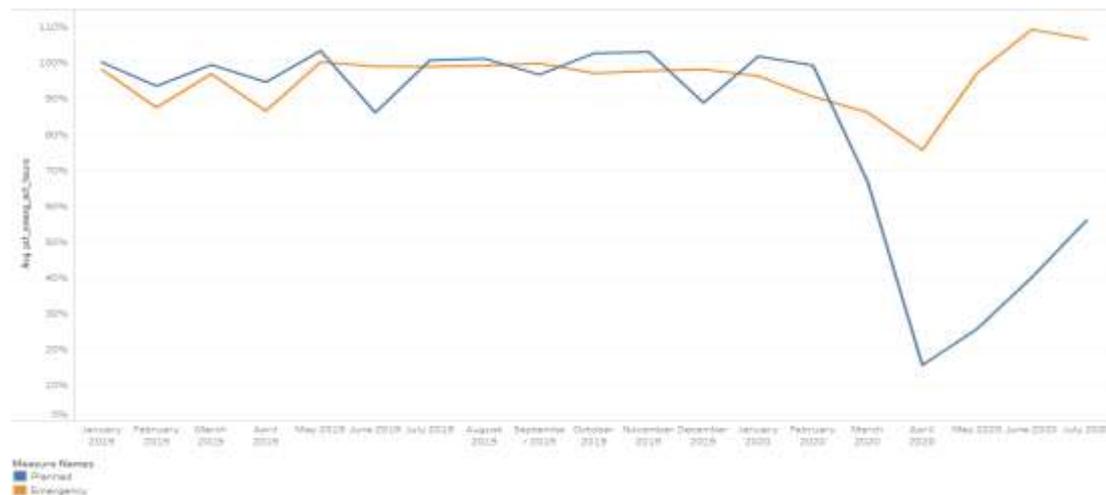


Fig 11: Actual hours of theatre sessions by planned and emergency against historical baseline in Scotland January to July 2020

Data on theatre capacity and usage is available through the National Theatre Implementation Group (NTIG), which monitors Operating Theatre activity. This has been facilitated by the presence of a nationally agreed and adopted Glossary and Definitions for operating theatres. A further advantage is that many Boards have adopted the OPERA

Theatre management system. However, not all Boards have made data returns for the affected period, so the picture is not complete.

The impact on patient waits and the continuing reduction in both the number of operating theatre sessions available and the reduction in theatre list productivity has led to the inevitable need for some level of case prioritisation. This will inevitably lead to a change from the historical allocation by surgical speciality (e.g. orthopaedics, ENT, plastic surgery). There will need to be monitoring to identify variations in capacity, a clear understanding of the reasons for any loss in capacity (e.g. loss of theatres, staffing by group and impediments to utilisation) and the impact on each speciality of clinical prioritisation.

Theatre productivity and utilisation is dependent on clear integrated diagnostic and treatment pathways for both scheduled and unscheduled care. This may require clinical 'prioritisation' encompassing diagnostic (radiology and endoscopy) and surgical care to achieve optimal planning of theatre allocation.

Recommendations: Operating Theatres

- Ensure timely national theatres data set is available to NTIG so that remobilisation can be monitored, and potentially focussed assistance can be offered
- Health Board should collect additional data describing and quantifying the reasons for reduced theatre capacity and the impact of theatre planning on each surgical sub-speciality
- Establish a common clinical prioritisation data set and validated system to monitor waiting times and activity by clinical prioritisation category at each stage of the patients' care pathway

k. Community Care

The community care, care homes and care home are an integral part of the health and care system. The impact on residents in care homes of COVID-19 has been recognised, however further work is required to more accurately reflect the inter-relationships between acute/secondary care and community care including data collection, integration and analysis. A paper on discharges to community care homes and outcomes will be available on 30th September (Report: Discharges from NHS hospitals to care homes between 1 March and 31 May 2020).

While a generic, person-based dataset from health and social care partnerships is collected nationally and covers people, which is theoretically submitted quarterly, the timeliness of reporting is variable making it difficult to analyse real-time information and link appropriately. As a result of this, analysing the impact of COVID-19 across the whole system, at a national level is not possible at this point in time.

The dataset, if integrated and timely, covers important aspects of community and social care, with a focus on four key areas: self-directed support, care at home, care homes and community alarms/telecare. Linkage to hospital data is carried out nationally providing opportunities to understand pathways from and to hospital care inter alia. However, a major limitation is the timeliness. For example, if all community care data was submitted by October 2020, this would allow a linked analysis of data up to 31 March 2020, hence this would still provide incomplete COVID-19 whole system data.

Discussions are underway with partnerships to find out if an accelerated timetable can be agreed for provision nationally of care at home data. A review of the responses will be undertaken in October 2020 and a decision on whether to proceed will be taken shortly thereafter. An important factor in this is the need for Public Health Scotland to add value to the data through linkage and to disseminate findings as quickly as possible.

Recommendations: Community Care

- To provide a whole-system response, recognising the importance of community care, there is an urgent need for this data to be available in a more timely fashion and linked with relevant key data sets for integrated care, subject to the review outlined above

I. Virtual Consultations

The COVID-19 pandemic has been a catalyst for the escalated use of digital platforms with significant uptake, with the majority of use related to planned services. Across Scotland, at the start of COVID-19 period the number of video consultations increased from 300 per week to over 16,000 per week in late June, with video consultation numbers remaining constant at between 16,000 and 17,000 per week. The main users of this type of service are (approximate figures): adult psychiatric and psychological therapies including community services (19%), GP (16% of total), child and adolescent mental health (12%), Paediatric (6%), physiotherapy (7%), speech and language therapy (4%). Two areas which have used video consultations in relation to unscheduled care are the Western General Minor Injuries Unit and Grampian COVID-19 Hub. NHS Lothian are using Near Me as a facility for minor injuries, with approximately 80 consultations per week in May/June 2020. Overall minor injury demand is circa 1400 attendances per week.

Tayside have continued to use Consultant Connect to support ED and related services. This is a telephone IT platform which provides senior support, with calls being recorded. Annual calls are approx. 13,000 per annum, the majority supporting the Perth Royal Infirmary. A further percentage of calls supports Minor Injury Units across the Tayside region. Support is also provided to NHS 24, GP OOH and SAS.

Recommendations: Digital Consultations

- Following a review from Pathfinder sites (including sociodemographic data and outcomes), embed the use of Near Me video consultations across suitable specialties and in particular assess their role in urgent and unscheduled pathways of care
- Monitor and analyse Near Me's role in supporting the unscheduled care pathway through Minor Injury/Illness Services to aid in service re-design

6. Further work

Individual system specific pathways are under review including, respiratory, gastrointestinal, paediatrics and mental health. Further work by this working group includes developing sections on planned/elective care and mental health due to be published imminently.

7. Working group

- Professor Derek Bell (Chair) Immediate Past President RCPE, National Clinical Advisor, Scottish Government
- Dr Milka Marinova, Clinical Research Fellow, Imperial College London
- Michael Fox, Improvement Lead, Scottish Government
- Fiona Mackenzie, Service Manager, Public Health Scotland
- Kathy McGregor, Analyst in Unscheduled Care, Public Health Scotland
- Katy Barclay, Head of Business Intelligence, Scottish Ambulance Service
- Nicola Dawson, Head of Integrated Service Delivery, NHS 24
- Professor Sir Lewis Ritchie, Mackenzie Professor of General Practice, University of Aberdeen
- Dr Eleanor Anderson, Consultant in Public Health, Greater Glasgow & Clyde
- Professor Peter Stonebridge, Medical Director, NHS Tayside
- Robert Williams, Associate Director of Business Analytics, Scottish Government
- Steven Mackie, Data Intelligence & Digital Innovation, Primary Care, Scottish Government

8. Acknowledgements

We would like to acknowledge the multiple others, including the Redesign Urgent Care workstream leads, who have contributed to content and revision of this document.

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Version: V1.0

Topic: Review of the COVID-19 data compared with historical data to support future service design and understanding of the unscheduled care pathway for NHS Scotland

Date: October 2021

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Appendix 1: Data quality categories:

Data quality can be categorised into the following areas

- **No data quality issues;** the data are deemed good quality and no issues identified.
- **Data recording issues;** data is generally of good quality but there may be some variation in the recording of data items. For examples the recording of A&E clinical/diagnosis coding may not always capture the level of detail needed.
- **Data completeness;** data are considered to be either complete or incomplete. Incomplete data is where the data provided can have;
 - missing data items in a dataset
 - have content of a data item recoded as 'not known'
 - NHS Board or hospital's data may be completely missing
- **Data gaps;** a data gap is where no information is available to inform e.g. Nationally for this redesign of unscheduled care programme Primary Care In Hours activity and community activity are two areas where there is a lack of data
- **Data timeliness;** this is how often data are supplied and how up to date it is e.g. national A&E data are submitted once per week, SMR01 discharges from hospital should be submitted to PHS within 6 weeks however, during the COVID-19 period there has been a significantly longer delay. Some health and social care data is only updated annually.

Appendix 2: Scotland Health Service Demand during COVID-19 Pandemic (1 March – 31st May)

