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Predictive Modelling and Proposed Framework for Restoration & Recovery

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Hampshire Child and Adolescent Mental Health Service

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In 2019/2020 our service:

- Received **8,651** referrals
- Completed **3,493** initial assessments
- Started treatment with **2,576** young people
- Offered **74,705** contacts
- Average open caseload of **6,653**

Hampshire CAMHS is provided by Sussex Partnership NHS Foundation Trust. Hampshire has an under 18s population of circa 300,000.

The Service has 179 WTE clinical staff and 46 WTE administration and management staff. There are 7 community CAMHS teams, a home treatment and hospital assessment service, a community eating disorder service, an early help service, which includes our single point of access and now two MHSTs.

Over the past four years there has been a circa 20% increase in referrals.

We have 1,500 young people waiting for assessment and 1,511 waiting for treatment.

Impact of COVID-19 on our Service

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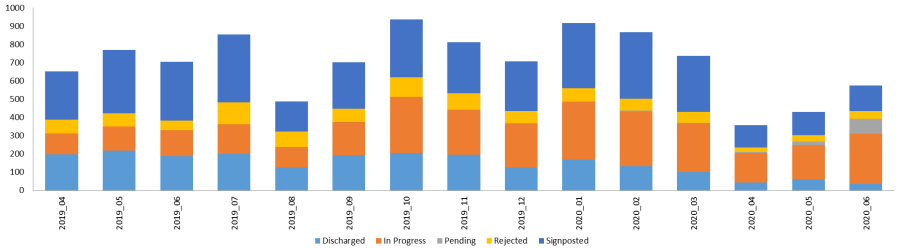
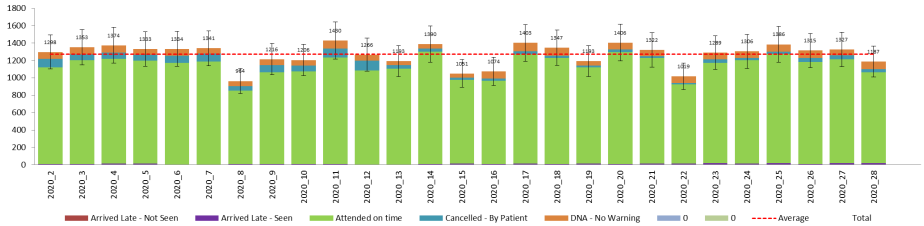
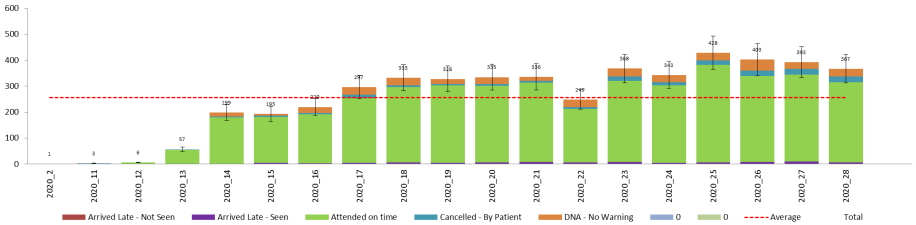
Referral rates have reduced as a result of COVID-19. These are however starting to increase, with greater rates of increase in our Eating Disorder Service. We have been accepting a greater proportion of referrals.



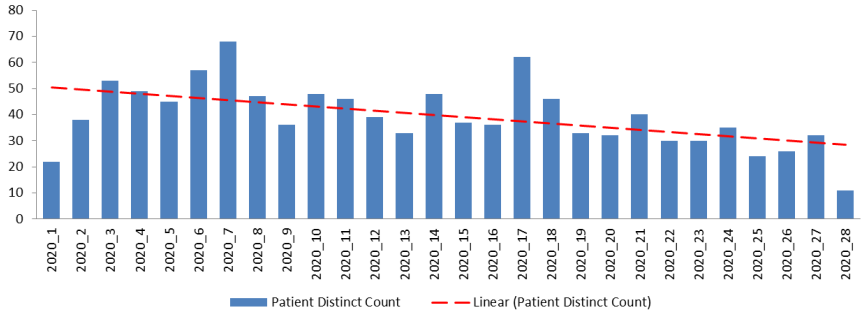
Overall contacts have remained relatively stable with no significant increase in 'child not brought' appointments. This indicates that young people open to our Service have required more support during COVID-19



We have considerably increased the number of digital/remote consultations in response to the restrictions, supported by our Trust Digital Team. However, it is not possible to provide effective therapeutic interventions through digital means to all young people. Our average contact duration time has reduced, although this has now significantly increased in our home treatment and hospital assessment service, indicating increased complexity in the crisis presentations.



The number of young people starting treatment and the number of young people being discharged has significantly reduced.



Our Predictive Modelling Journey

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The perfect storm?

A service which already has capacity challenges with clear impacts of COVID-19; fewer discharges, fewer starting treatment, increased complexity and the prospect of a surge in referrals all pointing to a challenge with throughput.

The Service has been using and developing a demand and capacity tool since 2016. The tool was originally developed by our performance team and the maintenance of the tool subsequently transferred to the Service. Over time the model has continued to be developed and refined to improve its sensitivity and take account of a range of factors.

In 2017 & 2019 the demand and capacity tool was independently evaluated through joint projects with our Commissioners. The latest report noted "The reviewers found the Tool to be very clear, thorough and robust."

The aim of the tool is to:

(i) demonstrate waiting time trajectories for both assessment and treatment

(ii) calculate the required clinical staffing in order to reduce waiting times within the Service

(iii) provide assurance that the overall activity of the service is in line with generally accepted assumptions, and identify challenges and solutions where this is not the case

In recent weeks, in response to COVID-19, the tool has been modified in order to provide modelling scenarios based on a range of factors such as +/- referrals, +/- discharges, +/- accepted rate, +/- required appointments for existing caseload. All elements which have been impacted by COVID-19. Its not just about referrals…..

What is the tool and how does it work?

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Important points to note:

- The tool itself is simply an MS Excel Spreadsheet. There are no bells and whistles. The power is behind the assumptions and calculations it is using, informed by clinical staff and operational managers.
- It was developed specifically for our CAMHS Service. It relies on connecting to a data warehouse which connects to our Care Notes System, which means it cannot be used by other Services outside our Trust. However, we have learnt a lot of lessons over the 4 years of using it, and a lot about what assumptions to use. We can share this information and, if there are people interested in improving existing tools or developing new ones, which can be made available to other services, we would be happy to support those developments.
- We are confident there are many different ways to forecast and predict demand, we only offer this as one idea.

The overarching principles of the model

Total Capacity

Total available capacity of each community team is calculated. This is based on a number of assumptions:

- The Clinical WTE of the Service (different scenarios including fully staffed, worked equivalent and anticipated)
- Standard calculations for leave, training, sickness etc.
- The Banding of the member of staff as this impacts the amount of direct clinical time
- The reasonable number of appointments being able to be undertaken each day

VS

If the total demand exceeds our total capacity our waiting lists will grow. The aim therefore is to ensure our capacity meets or exceeds demand

Total Demand

How much capacity do we need to manage our existing caseload, deal with our waiting list and continue to manage the new demand we receive each month

The assumptions in detail

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Staffing Calculations

1. Calculate the working days in a month taking into account sickness, leave, training etc.
2. Multiplied by number of appointments per day
3. Multiplied by the direct vs non direct ratios of the banding of each member of staff
4. Multiplied by the total number of staff in the team (models can be run on different staffing levels).

This calculation then provides the total number of appointments available for the team each month and is the starting point for the demand and capacity model.

Demand Calculations

This is more complicated….

1. Calculate the current caseload for the team and work out how many appointments are required for the current caseload. We do this by calculating how many times on average a person is seen within the service each month (some seen none, once, twice, three times, four times plus). Therefore someone who is seen 4 times needs 4 appointments in the month. This is based on looking at the previous 12 months.
2. Calculate the non-face to face contact time duration a month and turn this into appointments.
3. Calculate the referrals we are likely to receive each month. This is currently based on what has happened in the previous 12 months, plus % increase.
4. Calculate how many of these are signposted on average. This then gives the number that need to join the assessment waiting list. Assessments take longer and require 1.4 appointments.
5. Calculate how many are signposted, on average, following initial assessment. This gives the number that need to join the treatment waiting list. The first treatment appointment is one contact. Additional time for urgent appts. added
6. Calculate the average discharges month on month. These are then subtracted from the next month's forecast caseload.
7. Those that start treatment are added to next month's caseload. However, they have a different ratio in terms of how often they are seen (they are seen more frequently.

This calculation provides the total number of appointments required each month

The outputs

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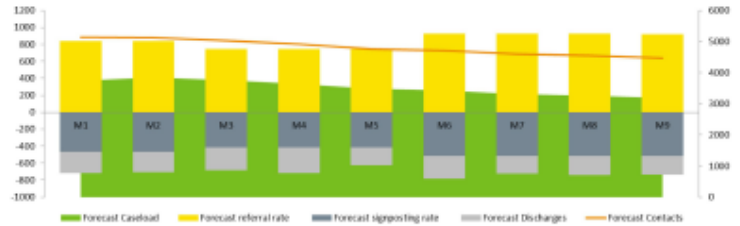
The model then knows how much capacity it has available and how much it needs. The model then runs some calculations to determine how many initial assessments and treatment allocations it can do without the amount of appointments required exceeding the appointments available over the forecast period. The model works over 9 months currently.

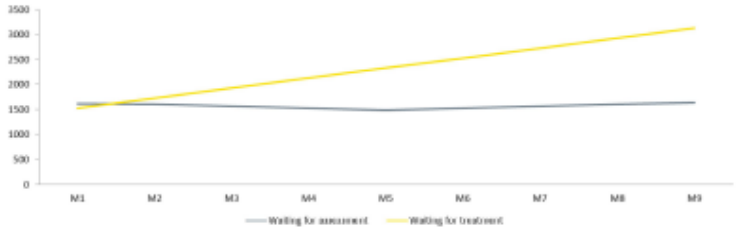
After running, the model produces outputs similar to the graphs opposite (one possible scenario of a 20% increase in referrals and no other impact). This is an extract from the restoration and recovery paper we have written and distributed.

Other benefits of the model:
We can compare the levels of activity we have been achieving against what we think we can achieve to understand unwarranted variation and address this.
We can provide clear summary information to our teams in order that they can do their best to plan for the right levels of assessments and case allocations, recognising we currently do not have enough capacity.
It can predict waiting times over 9 months.

Our modelling shows that with a 20% increase in referrals the service will experience acute challenges, beyond those currently being experienced. We are able to model a range of scenarios to determine the level of impact our Service may experience. A 20% increase in referrals will result in the following:



A 20% increase in referrals, above the current forecast demand, will result in a significant capacity shortfall. This impact will mean, over the medium term, that we will need to reduce our caseload whilst we attempt to balance the available capacity against the increasing demand.



In turn, we can expect to see an increasingly large number of young people waiting for treatment.

Next Steps

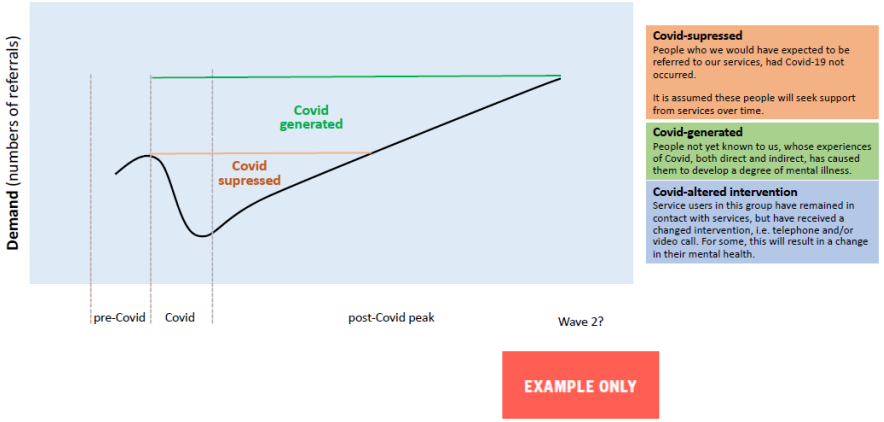
Our tool has been developed in order to model various combinations of scenarios. We will be developing the following based on three key areas:

COVID-19 Suppressed demand The Trust has already develop tools to predict when and to what extend we will see the suppressed demand. We will use these tools and apply this to our young person population. Currently the demand and capacity model can increase referrals at a flat rate. This will be changed to use the suppressed demand tool.

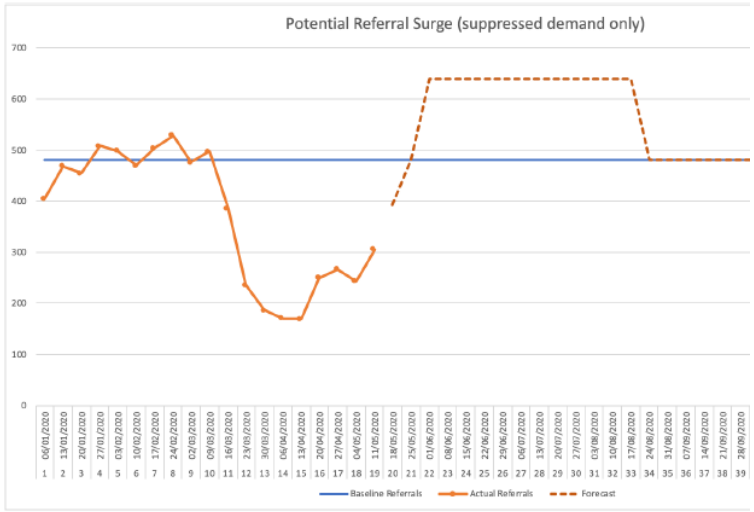
COVID-19 generated demand We are using the literature reviews and emerging evidence to apply this to our population, including the reviews undertaken by the South East Mental Health, Learning Disabilities and Autism Cell. With this and the above information we will able to provide a more sensitive prediction on the expected referrals we may see and when.

COVID-19 altered interventions Again, we are using the literature review and emerging evidence, alongside the impacts we have already seen within the Service to alter the assumptions in the demand and capacity model.

We expect therefore, with all of the available literature, research and known impacts on our Service we will be able to provide a more sensitive scenario, taking into account, not just an increase in referrals, but the impact of COVID-19 on service delivery (e.g. reductions in first treatments, reductions in discharges etc.)



EXAMPLE ONLY



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Recovery Planning

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During May 2020, we reviewed the existing literature in response to concerns regarding a mental health wave, similar to that seen with COVID-19. In response to this we developed a paper titled “Mental Health Resilience and Recovery Planning in the context of COVID19”

This paper covered four key components:

(i) a summary of available evidence at the time
(ii) an overview of the impact of COVID-19 on the Hampshire Child and Adolescent Mental Health Service
(iii) scenario modelling in order to highlight the significant impact of COVID-19 on children and young people mental health services
(iv) a proposed framework for a system wide response to address this challenge

This paper has been circulated to a number of key senior stakeholders and groups across the ICS. The paper has been widely supported, however there continues to be a level of anxiety as to the extent in which practical steps have been established in order to proactively address the challenge.

What do we expect to see?

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Short Term

Initially, we would expect that there will be an increase in crisis presentations, as a result of young people being reintroduced to stressors which have not been present for a number of weeks. In the main, this focus will be around re-engaging with school and also increasing social group interactions.

Those young people who have experienced, are experiencing, or are at increased risk of adverse childhood experiences in the future, are more likely to develop mental health difficulties. The impacts of COVID-19, social isolation and lack of structure are likely to exacerbate difficulties for these group of young people. It is likely that this will initially become apparent through an increased number of crisis presentations and are likely to require more intensive support.

Those young people with pre-existing mental health difficulties (for example anxiety or depression) or neurodevelopmental difference will likely be at more risk of presenting in crisis. Whilst this will have impacts for the wider system, it is reasonable to expect that the specialist CAMHS provision will see an increasingly high number of young people, currently waiting for a mental health intervention, presenting in crisis.

Medium Term

Those young people who do not have effective networks or systems around them are more likely to develop more chronic mental health difficulties and will require more intensive support. The available research would indicate that this could lead to increases in presentations across a range of mental health difficulties.

The exact timings of when we might experience increased difficulties are not known. However, we would expect to see increasing crisis presentations from now and particularly when lockdown measures start to ease, and in relation to the medium and longer term, this could be as far as 24 months into the future.

Proposed approach to a system wide framework

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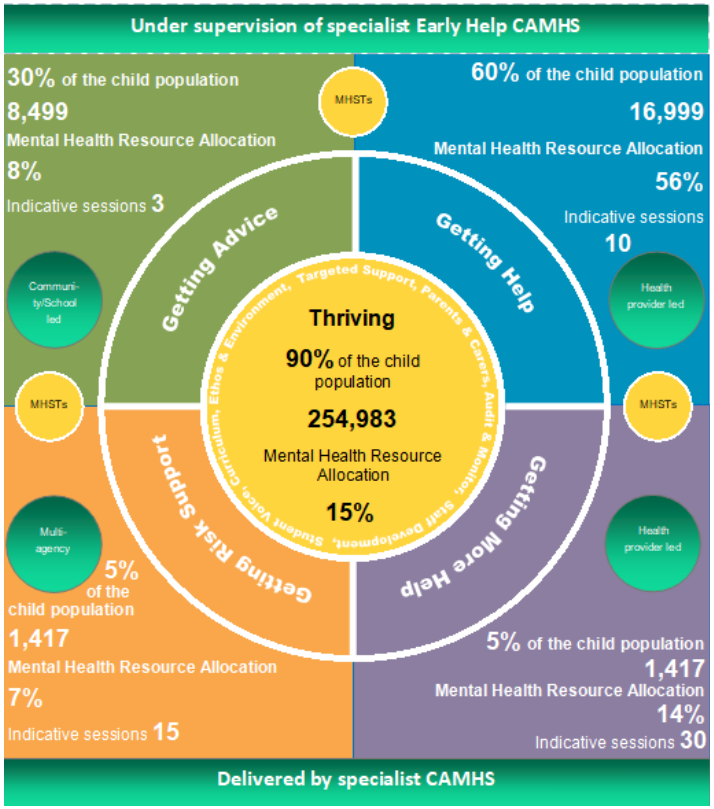
"These experiences directly affect the young person and their environment, and require significant social, emotional, neurobiological, psychological or behavioural adaptation.

Young people make these adaptations in an attempt to; survive in their immediate environment, find ways of mitigating or tolerating the distress they are facing by using the resources available to them, establish a sense of safety or control, or to make sense of the experiences they have had. Relationships really do matter, and every contact with someone who has experienced adversity and trauma can be an opportunity for healing and growth."
(Source: https://youngminds.org.uk/media/3091/adversity-and-trauma-informed-practice-guide-forprofessionals.pdf)

"A trauma-informed approach can help individuals and communities to recover following a crisis. Being trauma-informed means, at its most basic level, using knowledge of the ways in which traumatic experiences and traumatic stress affect people to make sure that the support they receive helps them to recover, instead of doing further harm."
(Source: https://www.centreformentalhealth.org.uk/sites/default/files/2020-05/CentreforMentalHealth_Briefing56_Trauma_MH_Coronavirus_2.pdf)



This proposed approach can most helpfully be represented within the THRIVE framework *(Adapted from THRIVE elaborated framework (Wolpert, M., Harris, R., Hodges, S., Fuggle, P., James, R., Wiener, A., McKenna, C., Law, D., York, A., Jones, M. and Fonagy, P. (2015) THRIVE elaborated) & Charlie Waller Memorial Trust (www.cwmt.org.uk)*

Proposed approach to a system wide framework

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Getting Advice

Advice & Information
Social Media outlets
Mental Health Forums For Schools
Wellbeing Clinics for Young People
Workshops
Chat room / consultation line
Mental Health Ambassador Scheme
CARE Programme
Training for Professionals

Getting Help

Discovery College
Mind District
Groups
Low Intensity CBT Interventions
High Intensity CBT Interventions
School Link Programme

Getting Risk Support

Psychiatric Liaison
Crisis care in the community

Getting More Help

Groups
High Intensity CBT Intervention
Specialist Therapeutic and Pharmacological Interventions

It will be possible for the CAMHS Service to provide some of these interventions, but not all. In order to provide a consistent and sufficient level of support, additional resource and/or staff will be required. The purpose of the paper was to help support system leaders to think about the areas which might be most helpful and how best to respond proactively, at an earlier stage, to support reducing the impact of a potential mental health wave adversely impacting mental health services.

The paper goes into more detail as to which services we believe we will be able to offer and which may require additional resource.

There will need to be a coordinated and additional response from universal services in order to help prevent a significant shift in young people moving from the 'Thriving' element of the model (i.e. those that do not require additional specific mental health support).

These areas continue to be raised through the Children and Young People Psychological Well-being (Prevention) work stream of the Mental Health Transformation Board. In the meantime the Service is focusing on resilience planning in order to ensure we are clear on how we will wind down existing provision in order to protect business critical functions.

Considerations for face to face vs digital interventions

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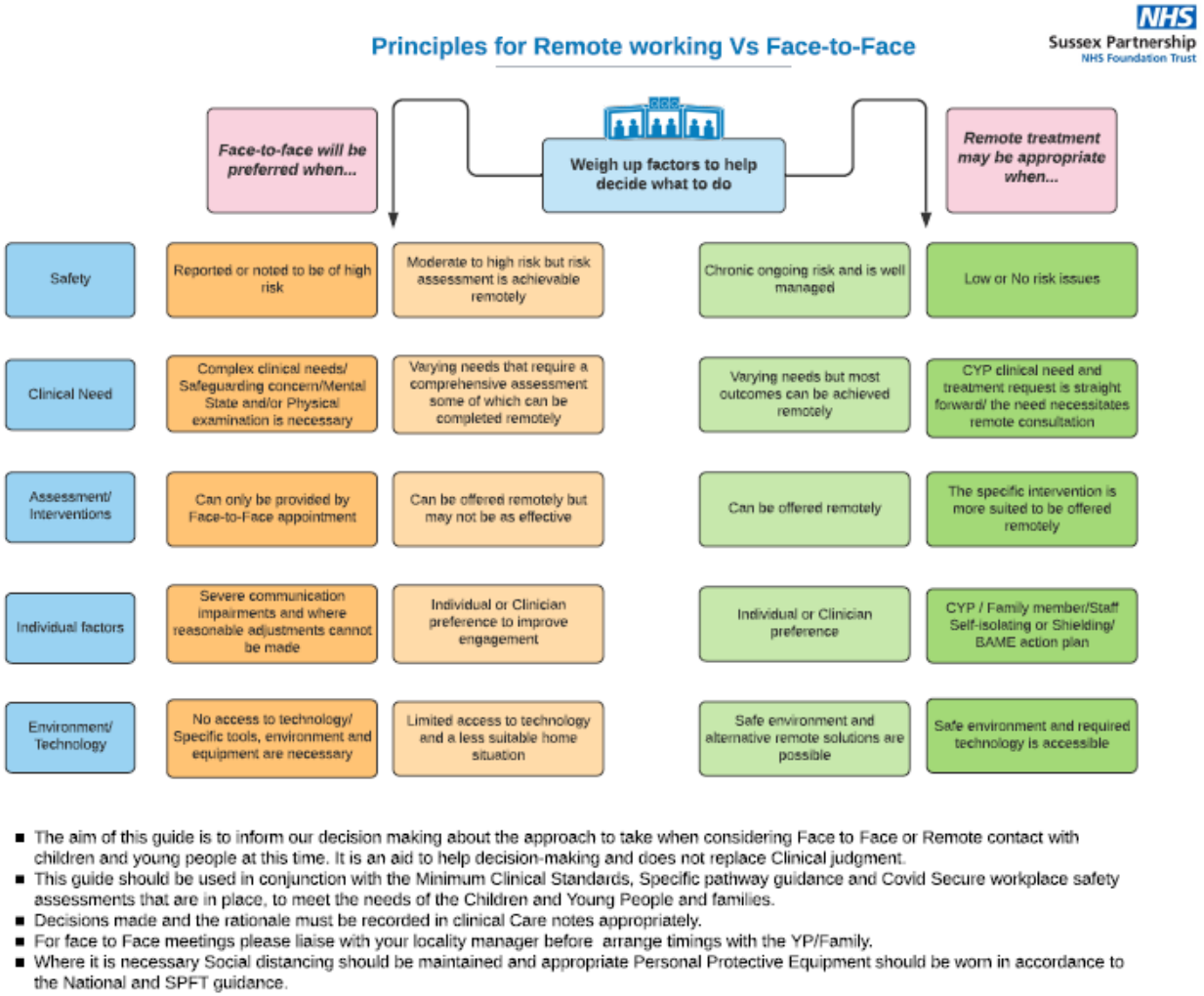
To date, unless there was a specific clinical risk, we have not been seeing young people face to face. For some young people this has meant it has been necessary to pause or adapt the therapeutic intervention, or not start this at all. As a result, this has understandably had an impact in some areas of our Service delivery. We wish to work towards re-starting therapeutic interventions with young people face to face, where this has not been possible through digital means/remotely **and** where this can be done safely in accordance with COVID-19 Safe working practices. This model has been developed to support that approach.



- The aim of this guide is to inform our decision making about the approach to take when considering Face to Face or Remote contact with children and young people at this time. It is an aid to help decision-making and does not replace Clinical judgment.
- This guide should be used in conjunction with the Minimum Clinical Standards, Specific pathway guidance and Covid Secure workplace safety assessments that are in place, to meet the needs of the Children and Young People and families.
- Decisions made and the rationale must be recorded in clinical Care notes appropriately.
- For face to Face meetings please liaise with your locality manager before arrange timings with the YP/Family.
- Where it is necessary Social distancing should be maintained and appropriate Personal Protective Equipment should be worn in accordance to the National and SPFT guidance.

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