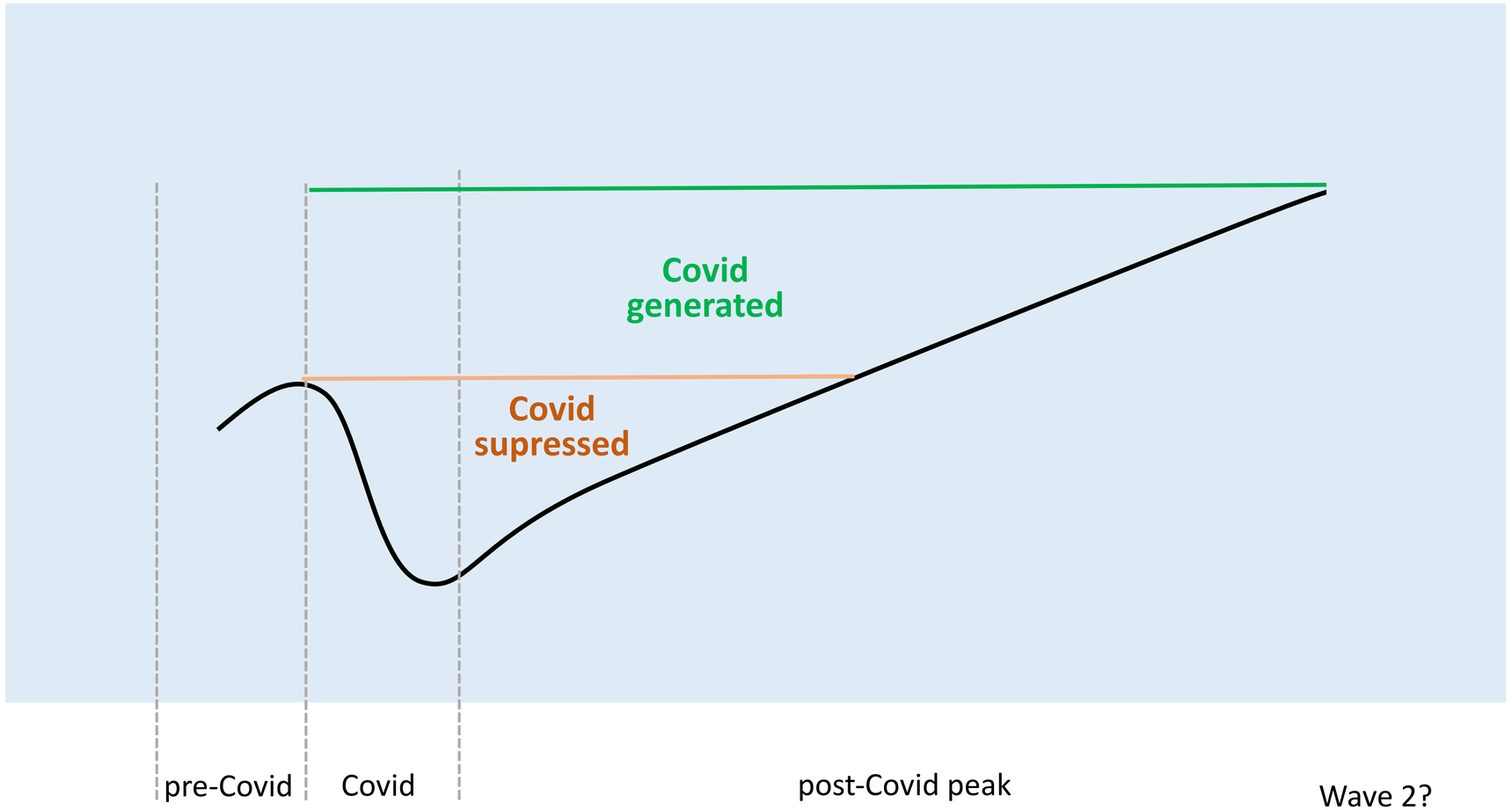
Modelling Mental Health Demand as a Consequence of Covid-19 in Sussex

DR GURPRIT PANNU

Task

- Identifying and bringing together core data
- Explore gaps in knowledge and understanding
- Demand assessment for ICS mental health demand planning meeting
- Identify potential key risks to core mental health services
- Support *local* systems to map local mental health demands in Covid-19 context

Assessing future demand



Covid-supressed
People who we would have expected to be referred to our services, had Covid-19 not occurred.

It is assumed these people will seek support from services over time.

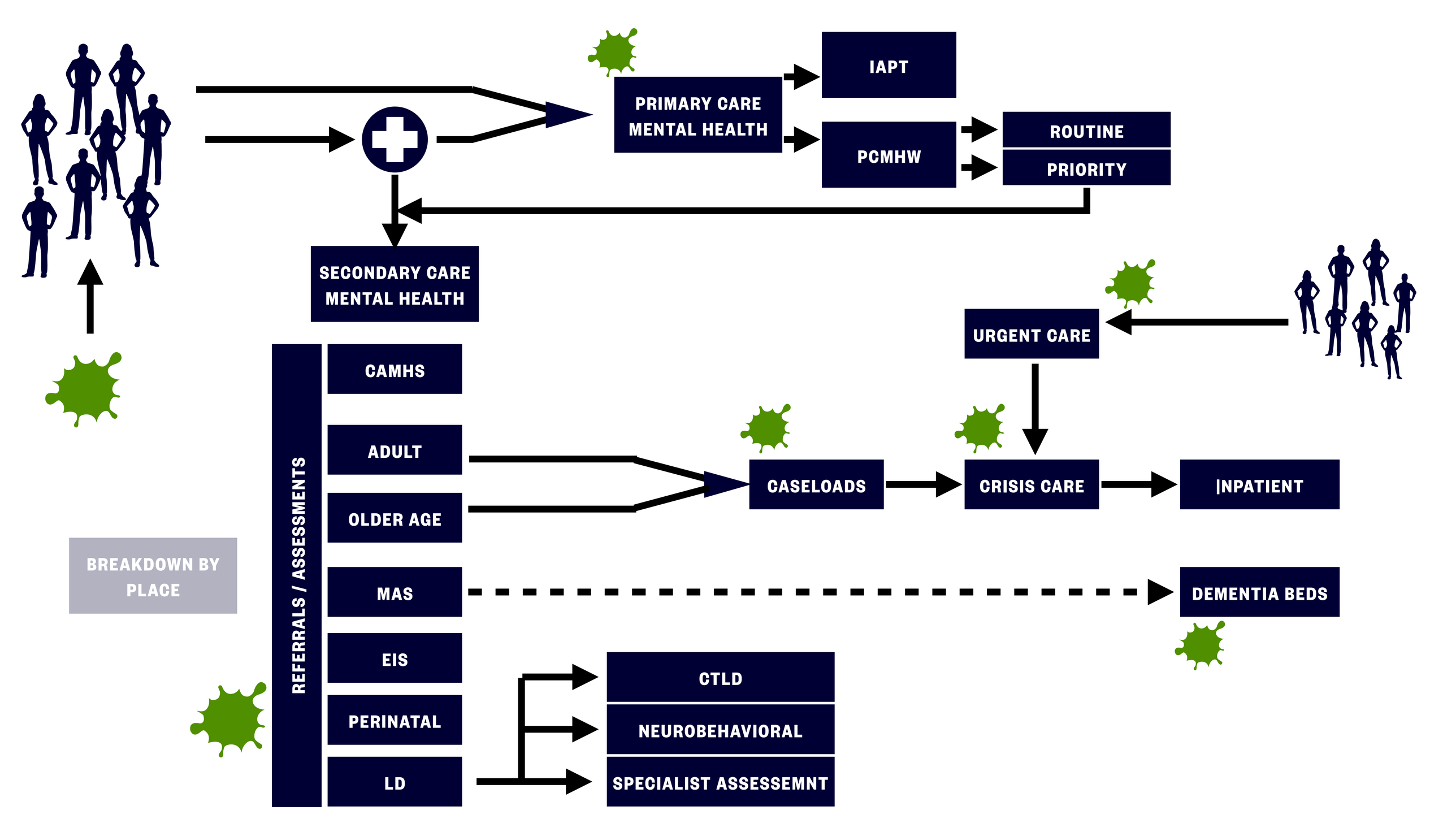
Covid-generated
People not yet known to us, whose experiences of Covid, both direct and indirect, has caused them to develop a degree of mental illness.

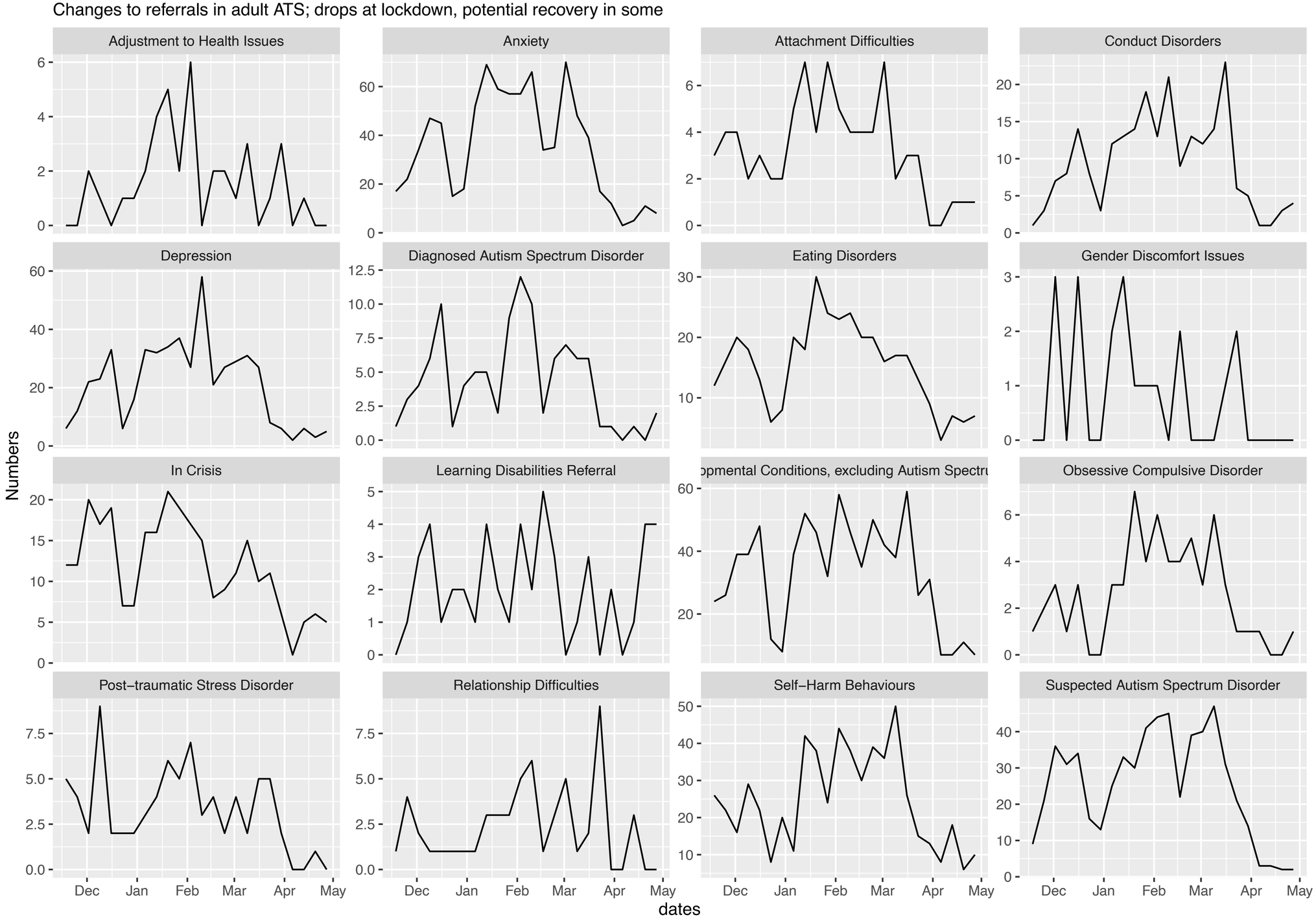
Covid-altered intervention
Service users in this group have remained in contact with services, but have received a changed intervention, i.e. telephone and/or video call. For some, this will result in a change in their mental health.

Model is broadly applicable to all our service lines but will vary in impact by service line

Approach

- Covid-19 **suppressed**
- Covid-19 **altered intervention**
- Covid-19 **generated**
- Model the impact on referrals, caseloads, crisis care, inpatient services
- Early Warning Signs
- Incidental findings that support transformation


PRIMARY CARE MENTAL HEALTH
IAPT
PCMHW
ROUTINE
PRIORITY
SECONDARY CARE MENTAL HEALTH
URGENT CARE
REFERRALS / ASSESSMENTS
CAMHS
ADULT
OLDER AGE
MAS
EIS
PERINATAL
LD
CASELOADS
CRISIS CARE
INPATIENT
DEMENTIA BEDS
CTLD
NEUROBEHAVIORAL
SPECIALIST ASSESSEMNT
BREAKDOWN BY PLACE


Changes to referrals in adult ATS; drops at lockdown, potential recovery in some
Adjustment to Health Issues
Anxiety
Attachment Difficulties
Conduct Disorders
Depression
Diagnosed Autism Spectrum Disorder
Eating Disorders
Gender Discomfort Issues
In Crisis
Learning Disabilities Referral
opmental Conditions, excluding Autism Spectru
Obsessive Compulsive Disorder
Post−traumatic Stress Disorder
Relationship Difficulties
Self−Harm Behaviours
Suspected Autism Spectrum Disorder
Numbers
dates
Dec
Jan
Feb
Mar
Apr
May

Reason for referral into ATS	Baseline	PostCovid	Missing in April
(Suspected) First Episode Psychosis	4	3	4
Ongoing or Recurrent Psychosis	14	8	24
Bi-polar Disorder	17	9	32
Depression	120	47	292
Anxiety	41	22	76
Obsessive Compulsive Disorder	5	1	16
Phobias	1	0	4
Organic Brain Disorder	4	3	4
Drug and Alcohol Difficulties	4	1	12
Unexplained Physical Symptoms	2	1	4
Post-traumatic Stress Disorder	14	6	32
Eating Disorders	3	2	4
Perinatal Mental Health Issues	1	1	0
Personality Disorders	22	12	40
Self-Harm Behaviours	9	5	16
Conduct Disorders	2	1	4
In Crisis	33	26	28
Relationship Difficulties	2	0	8
Gender Discomfort Issues	2	0	8
Attachment Difficulties	1	0	4
Self-Care Issues	1	0	4
Adjustment to Health Issues	2	0	8
Neurodevelopmental Conditions, excluding Autism Spectrum Disorder	13	5	32
(Suspected) Autism Spectrum Disorder	5	2	12
(Diagnosed) Autism Spectrum Disorder	3	1	8
Preconception Perinatal Mental Health Concern	1	0	4
Learning Disabilities Referral	1	0	4

Will they all present later?

When?

Will they be more unwell?

Conversion factor?

Caseload

Model scenarios

1 - 6 months

25% / 50% / 75%

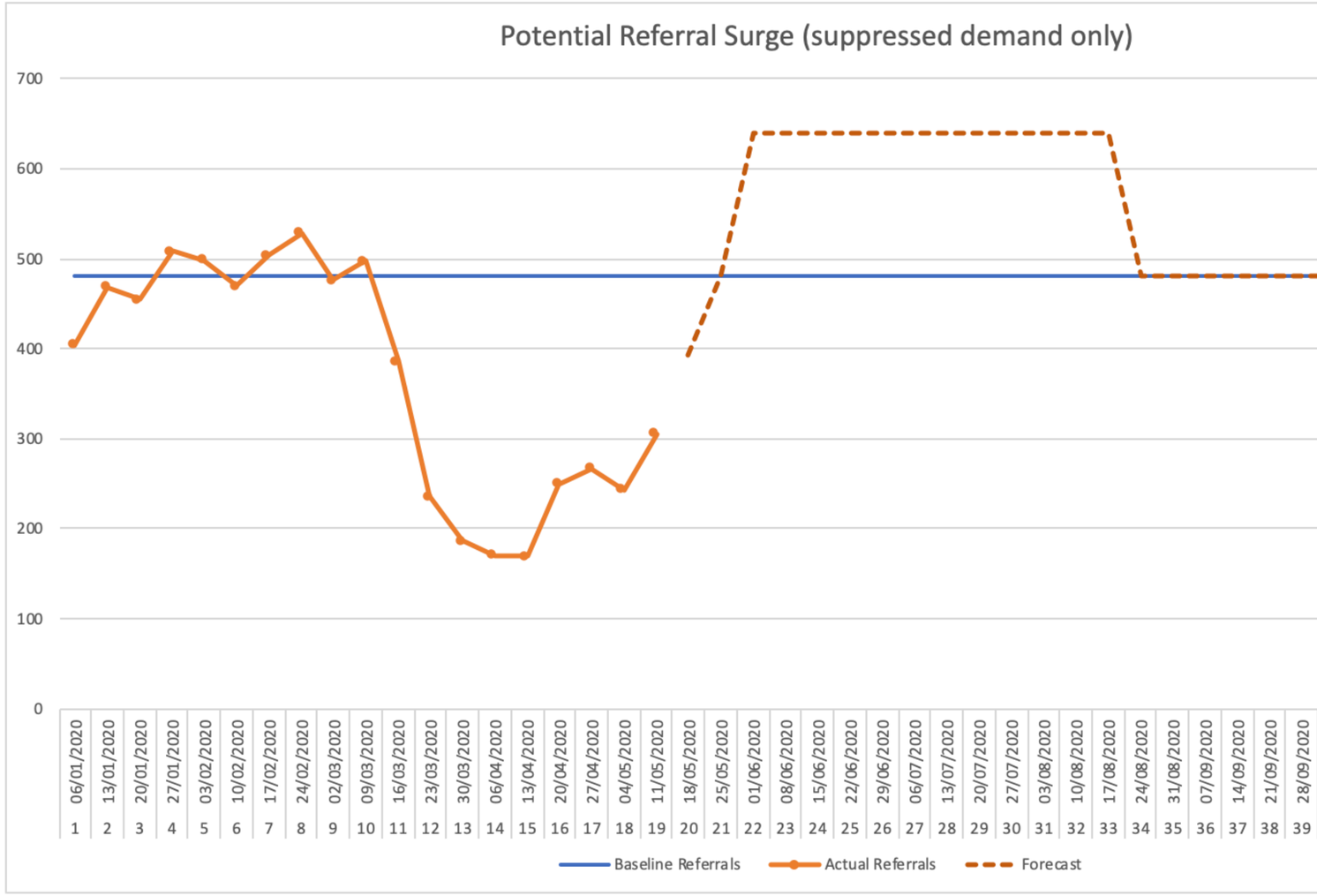
Suppressed

EXAMPLE ONLY

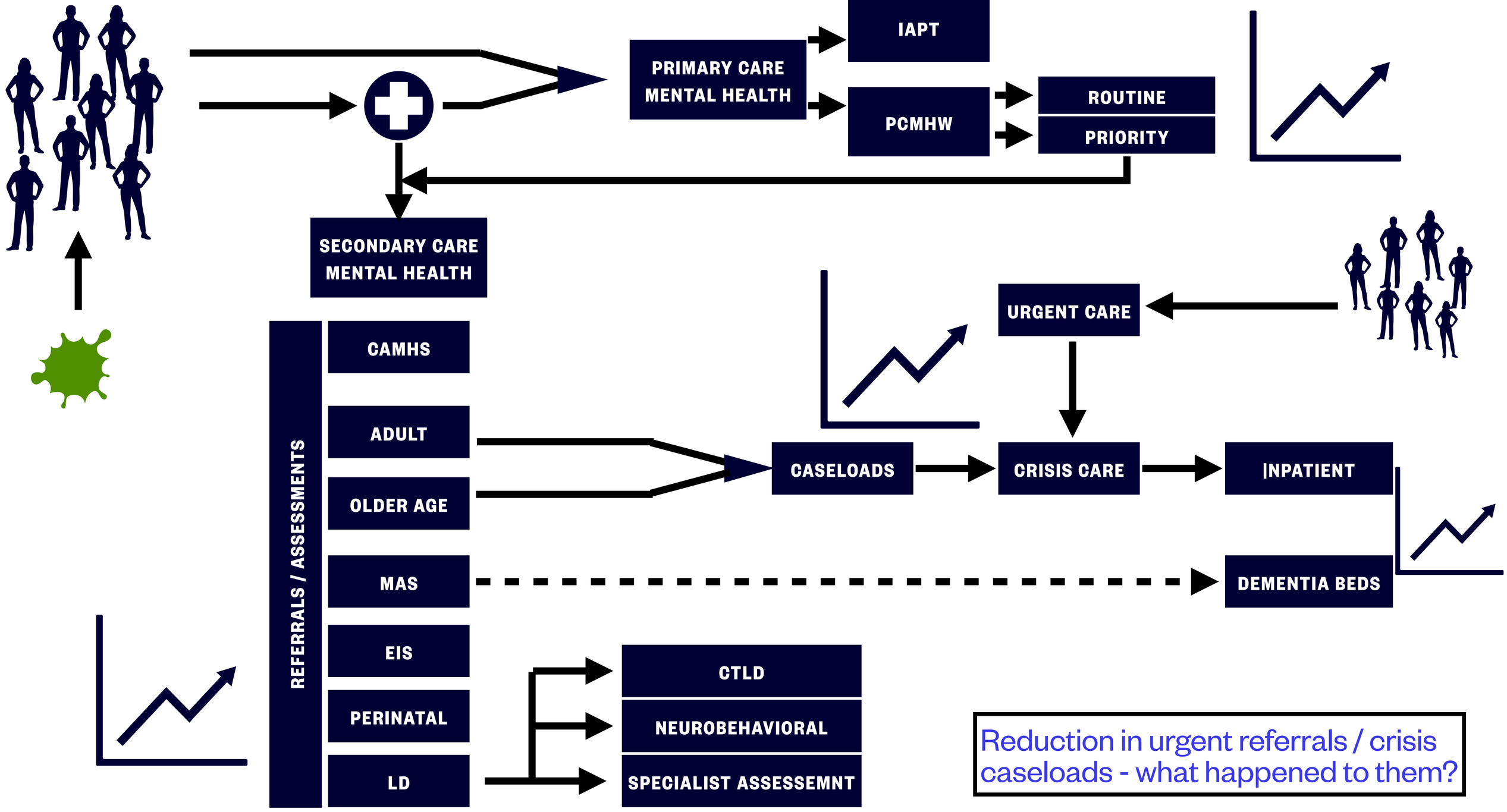
Scenario Modelling: Return of suppressed demand

Select ATS Area: Trust Total

Weekly Baseline Referrals (Jan-mid March)	481	*% Change to Baseline*
Minimum level post Covid	169	-65%
Cumulative Reduction in referral to date	2,115	
No. weeks forecast to return to baseline	2	*Input*
Possible Total Reduction in referrals	2,202	
% Referrals return in surge	90%	*Input*
Possible Duration of Surge	12	*Input*
Possible Weekly additional Surge volume	165	*% Change to Baseline*
Possible Surge weekly referrals	**646**	34%



BREAKDOWN BY PLACE / SERVICE TYPE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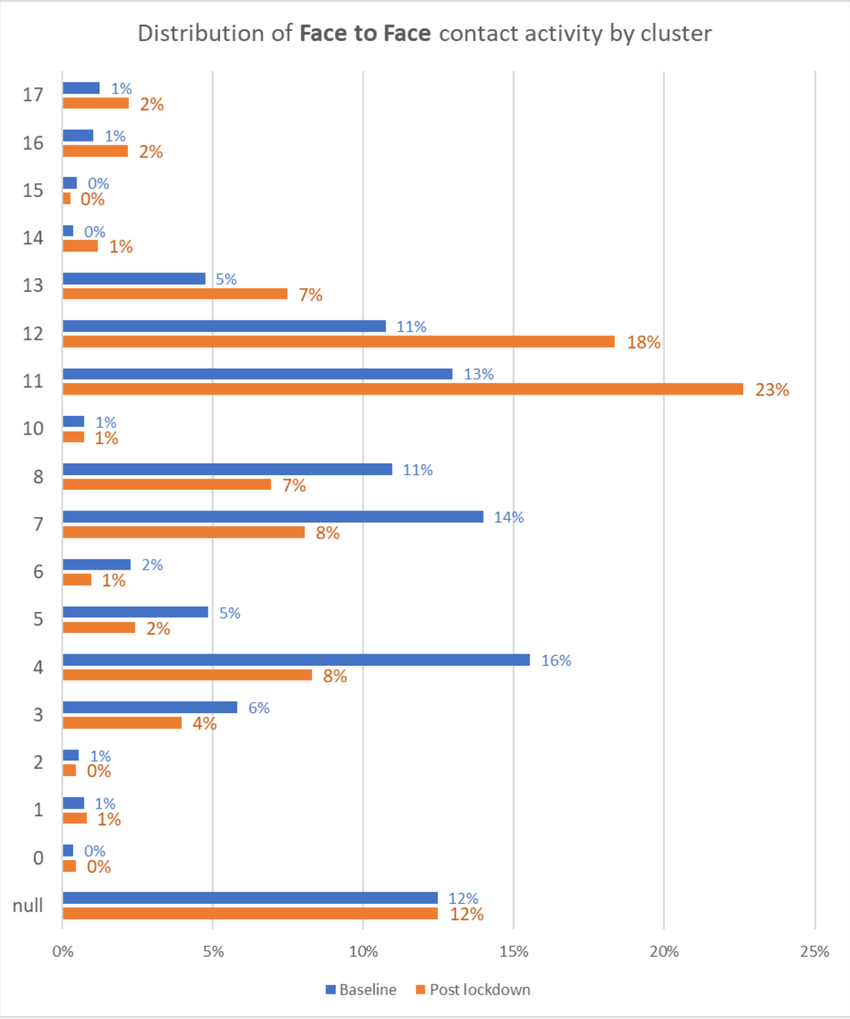
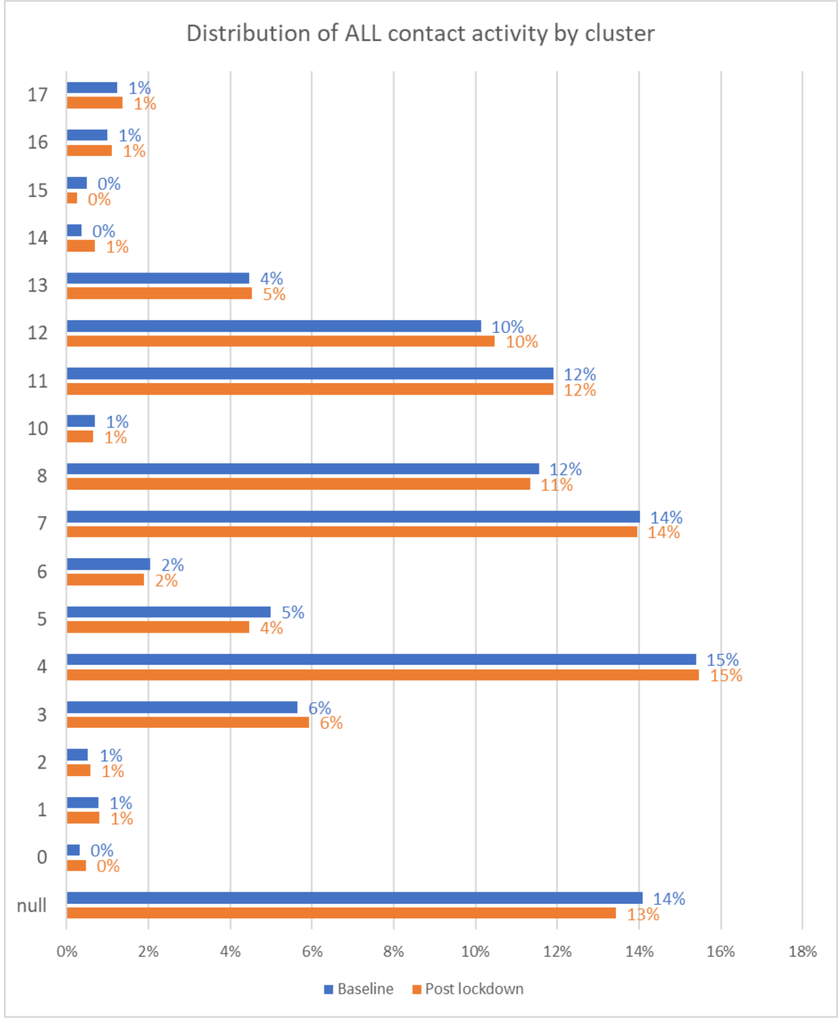
Reduction in urgent referrals / crisis caseloads - what happened to them?

Altered Intervention

Face to Face contacts focusing more on psychosis clusters





Face to Face contact activity has dropped significantly in ATS Services (approx. 65% less than baseline levels).

Those patients that continue to be seen face to face are more weighted to the psychosis clusters (11-13).

In terms of overall contacts (including telephone and virtual) the distribution of contact activity by cluster is very similar post lock down to the baseline period.

Evidence of clinicians intelligently redirecting resources but too early to measure impacts

Generated

Adult and Older Age Population

	Short-term		Medium to long-term	
	Event (cause)	**Potential impact** (effect)	**Event** (cause)	**Potential impact** (effect)
Covid-19 direct	Threat from Covid-19, perceived and actual	Anxiety Exacerbation of existing psychotic symptoms	Post ICU syndrome (PICS)	Anxiety Depression PTSD
	Bereavement	Depression	Bereavement	Prolonged traumatic grief Complicated grief
			Psychological impact on front line staff	PTSD
Covid-19 indirect	Lockdown and isolation	Anxiety Depression Exacerbation of existing psychotic symptoms Increase in challenging behaviours (Learning Disability) Increase in alcohol misuse and other addictions	Actual economic impact, e.g. unemployment, job insecurity, income reduction, increased debt, housing loss, loss of socio-economic status	Anxiety Depression Suicide Increase in alcohol misuse and other addictions
	Fear of potential economic impact	Anxiety		
	Adversely affected personal relationships, including domestic violence	Anxiety Depression	Adversely affected personal relationships, including domestic violence	Anxiety Depression Increase in alcohol misuse and other addictions

Generated

Children and Younger Persons Population

	Short-term		Medium to long-term	
	Event (cause)	**Potential impact** (effect)	**Event** (cause)	**Potential impact** (effect)
Covid-19 direct	Threat from Covid-19, perceived and actual	Anxiety Exacerbation of existing psychotic symptoms	Post ICU syndrome (PICS)	Anxiety Depression PTSD
	Bereavement	Depression	Bereavement	Prolonged traumatic grief Complicated grief
			Psychological impact on front line staff	PTSD
Covid-19 indirect	Lockdown and isolation	Anxiety Depression Exacerbation of existing psychotic symptoms Increase in challenging behaviours (Learning Disability)	Adversely affected personal relationships, including an increase in adverse childhood experiences and child protection issues	Anxiety Depression
	Adversely affected personal relationships, including an increase in adverse childhood experiences and child protection issues	Anxiety Depression	Lack of progress at school	Anxiety Depression

Disproportionate Impacts

Black and Minority Ethnic population [Mental Health Equity Audit]

London Commuters

Gatwick related employment

Unexplained physical symptoms

Differential Impact of Covid across Sussex

Some Trust areas already under pressure

Literature Review

Area	Impact	Source
Hospitalised patients by COVID19	60% likely to have diagnosable mental health problems at 2 year follow 24% meet criteria for a PTSD diagnosis	Anxiety, Depression and PTSD post- ICU for survivors of acute lung injury 2 year follow up *https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4336582/*
Impact on carers and families	Likely to be significant complicated bereavement reactions in carers and families given context of COVID19	*https://www.ncbi.nlm.nih.gov/pubmed/21216470*
Common mental health problems People isolating in the context of COVID19.	8% increase in stress 28% increase in anxiety 16% increase in depression for Increased numbers formal health anxiety. Worsening symptoms pre-existing health anxiety related conditions. Health related anxiety	*https://pubmed.ncbi.nlm.nih.gov/32155789* NHIR study: The potential impact of COVID-19 on mental health outcomes and the implications for service solutions (appendix 1). No current data yet available to quantify the size of the health anxiety issue

BRIEFING

Centre for Mental Health

Covid-19 and the nation's mental health

Forecasting needs and risks in the UK: May 2020

Dr Graham Durcan, Nick O'Shea and Louis Allwood

Increase in mental health problems related to economic downturn

500,000 extra will experience mental health conditions in UK — Bank et al (2020)

Sussex -> 1.7/66.7 million X 500,000 = **12800**

Time frame - full impact seen over 2 - 5 years (Janke et al 2020)

Mostly depression / anxiety

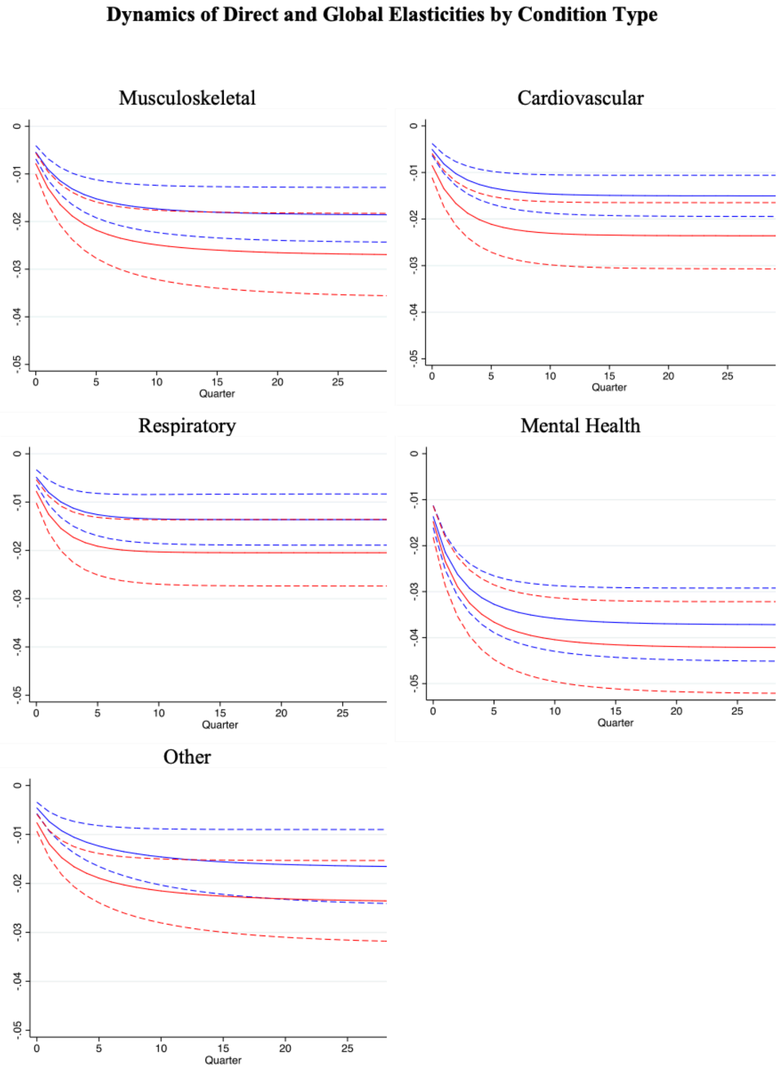
Q - How many will present to Health System (conversion factor)?

Q - What proportion of current mental health condition in Sussex

Q - What is impact on non working age population?

Impacts

1. Older working age
2. Poorer
3. Traditional industrial structures
4. Children in lowest quintile



Notes: Estimates from Restricted Model. Blue Line = Direct elasticity; Red Line = Global elasticity; 90% confidence intervals by dashed lines.

Loss of employment

Suicide rate increased 6.5% post recession

Stuckler et al (2017)

	Pre-Covid	Predicted	Increase
Sussex	492	524	32

Personal Debt 45% in debt have mental health problems

cf. 14% not in debt

Knapp (2012)

Severest adverse effects on those with **chronic health conditions** especially in **mental health**

Janke et al. (2020)

Isolation

Immediate Impact

Stress 8%

Anxiety 28%

Depression 16%

Wang et al 2020 China

Q - How many will present to Health System?

Q - Will these settle without intervention

Increased impact on BAME?

Q - Impact on those already unwell;

1. Depression / anxiety
2. Psychotic symptoms

Estimate -

10% increase in psychotic

15% increase in anxiety / depression

Quantify

Increased symptoms resulting in

Utilisation of health system

1. GP visits
2. IAPT
3. Secondary care
   A. Referrals
   B. Busier caseloads
   C. Crisis referrals
   D. Acute admissions

Hospitalised patients

SARS-CoV survivors at 1 year

Lee et al. (2007)

64% clinically diagnosable symptoms (PTSD / Depression / Anxiety)

Depression

36% moderate / severe

4.4% extremely severe

Anxiety

37% moderate / severe

14% extremely severe

Symptoms of trauma

32%

Q -How many survivors in hospital? 5000

Include Care Homes

IAPT / ATS ratio -> referrals

IAPT -> PTSD 1250

SARS survivors at 30 months

Mak et al. (2009)

25% PTSD

PTSD in ITU

20% of ITU survivors develop PTSD	Righy et al. (2019)

Q - are all ITU patients with PTSD seen for mental health treatment?

- how many more ITU patients compared to normal times?

Q - utilise figures from previous slide?

Grief

7% bereaved -> complex grief reaction

[potentially higher in Covid-19 circumstances]

Third Sector

IAPT

Secondary Care

Q - how many Covid related deaths in Sussex total?

Q - how many bereaved?

Q - focus on carers?

Approx 1000 deaths

Bereaved = X2

Complex grief = 140

Health Workers

Health Care Workers working with SARS-CoV compared to not Distress is 50% higher PTSD /**burnout** higher Reduced face to face patient contact Increased smoking / alcohol Increased behaviours interfering with relationships / work Lasted 1-2 years	Sim and Chua (2004) How many health and care home workers exposed Acute = ~2500 Care homes = ~ 5000 ?40% require MH services
10% Hospital staff - high trauma at time of crisis 40% continued significant symptoms at 3 years	Wu et al. (2009)
50% stated mental health declined / **burnout** (2020) 20% more likely to leave health sector Advises priority access to IAPT	Thomas and Quilter-Pinner

Care Home Workers not studied (764 care homes in Sussex)

Long Term Conditions

Clinically vulnerable to virus
ITU
Mortality
Shielding

Diabetes - 2-3X rate of depression
Diagnosis of depression = 15% / depressive symptoms = 25%
Poor glycemic control / low medication adherence

COPD - 3X rate of depression / anxiety
Increased mortality / exacerbation rates / LOS / quality of life

Shielded
e.g. kidney disease - protracted period of isolation

	QoF Register Sussex
COPD	33606
Asthma	111271
Diabetes	94119
Chronic Kidney Disease	137766

Domestic Violence

19.3 incidents per 1000

Safeguarding data - One Quarter in arrears

Support lines / web chat activity increased 54% and 70%

50% increase in Multi Agency Assessment Conference MARAC domestic abuse referrals

Substantial rise in self-referrals to Child Line

Child Abuse Douglas et al. (2009)

Trauma

Loss of parental support

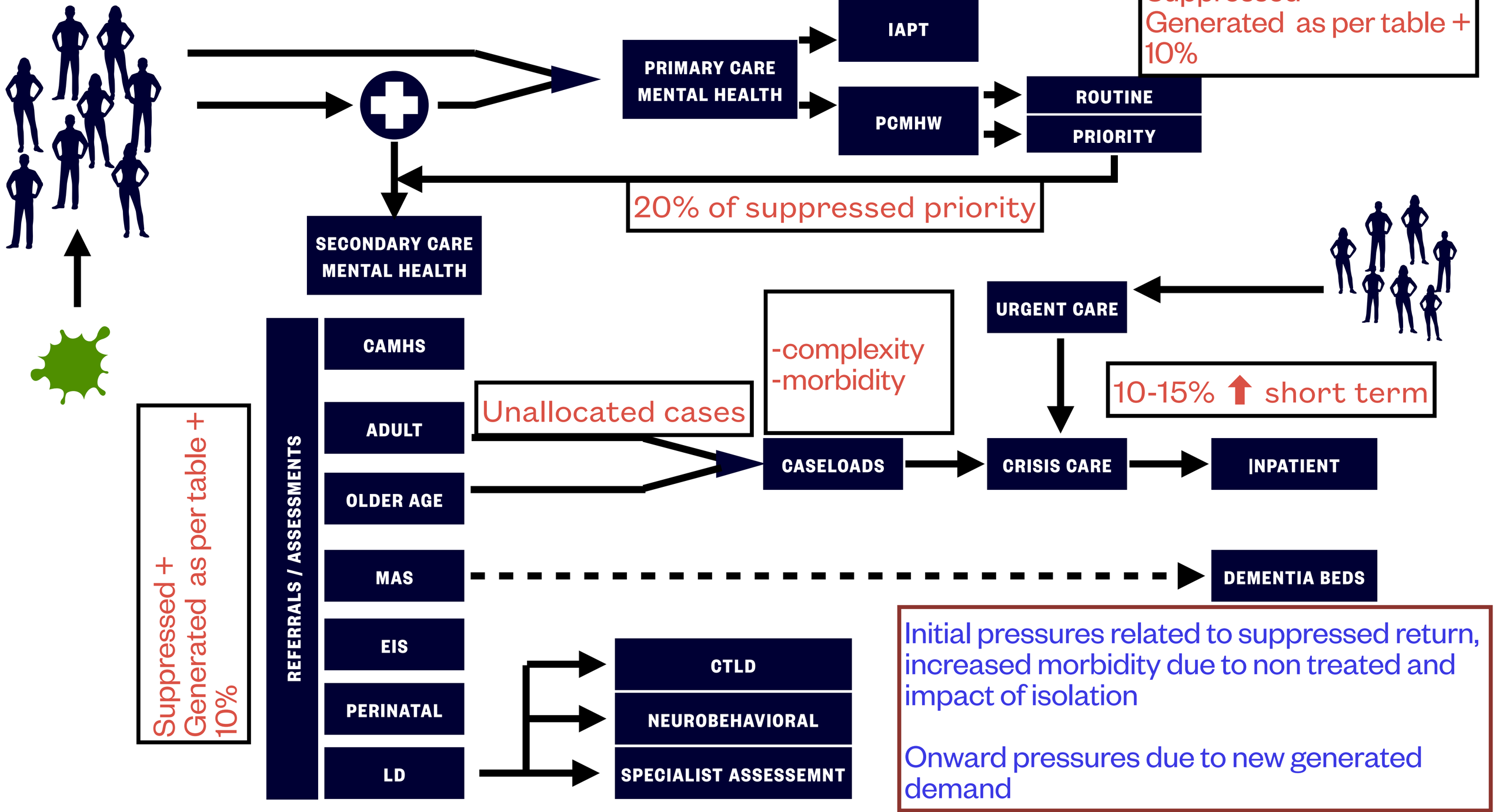
Illness

Sense of security

Regressive behaviours e.g. thumb sucking / bed wetting

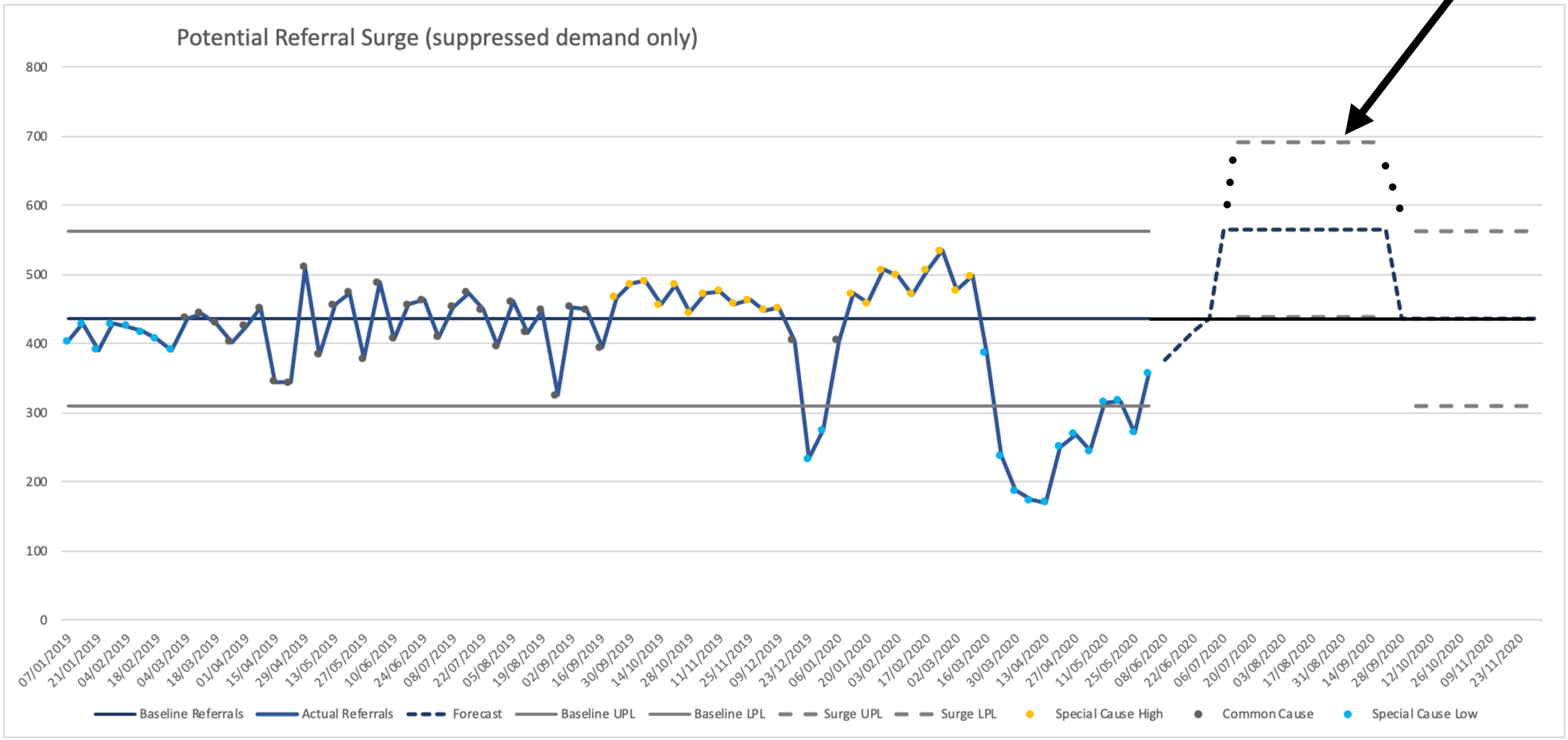
Disruptive behaviours e.g. aggression, nightmares, lack of attention, anger, withdrawn

	INCREASE	TIME FRAME	THIRD SECTOR	PRIMARY CARE MENTAL HEALTH	SECONDARY CARE MENTAL HEALTH
Economic Recession	12800	3 years	X	X	X
Isolation	10%	6 months	X	X	Referrals /Caseload
Covid-19 Survivors	5000	0-2 years		IAPT/ATS ratio	IAPT/ATS ratio
PTSD	1250	1-2 years		XX	X
Complex Grief	150	1-2 years	XX		
Health & Care Workers	3000	0-2 years		IAPT/ATS ratio	IAPT/ATS ratio
Domestic Violence	⬆⬆⬆	0-2 years	XXX	X	X
Children / Younger People	TBC	TBC	X	X	X
Chronic Long Term Health Conditions	⬆⬆	3 years			
Suicides	30	Yearly			


Suppressed + Generated as per table + 10%
IAPT
PRIMARY CARE MENTAL HEALTH
PCMHW
ROUTINE
PRIORITY
20% of suppressed priority
SECONDARY CARE MENTAL HEALTH
URGENT CARE
-complexity
-morbidity
10-15% ⬆ short term
CAMHS
ADULT
OLDER AGE
Unallocated cases
CASELOADS
CRISIS CARE
INPATIENT
Suppressed + Generated as per table + 10%
REFERRALS / ASSESSMENTS
MAS
DEMENTIA BEDS
EIS
PERINATAL
LD
CTLD
NEUROBEHAVIORAL
SPECIALIST ASSESSEMNT
Initial pressures related to suppressed return, increased morbidity due to non treated and impact of isolation
Onward pressures due to new generated demand

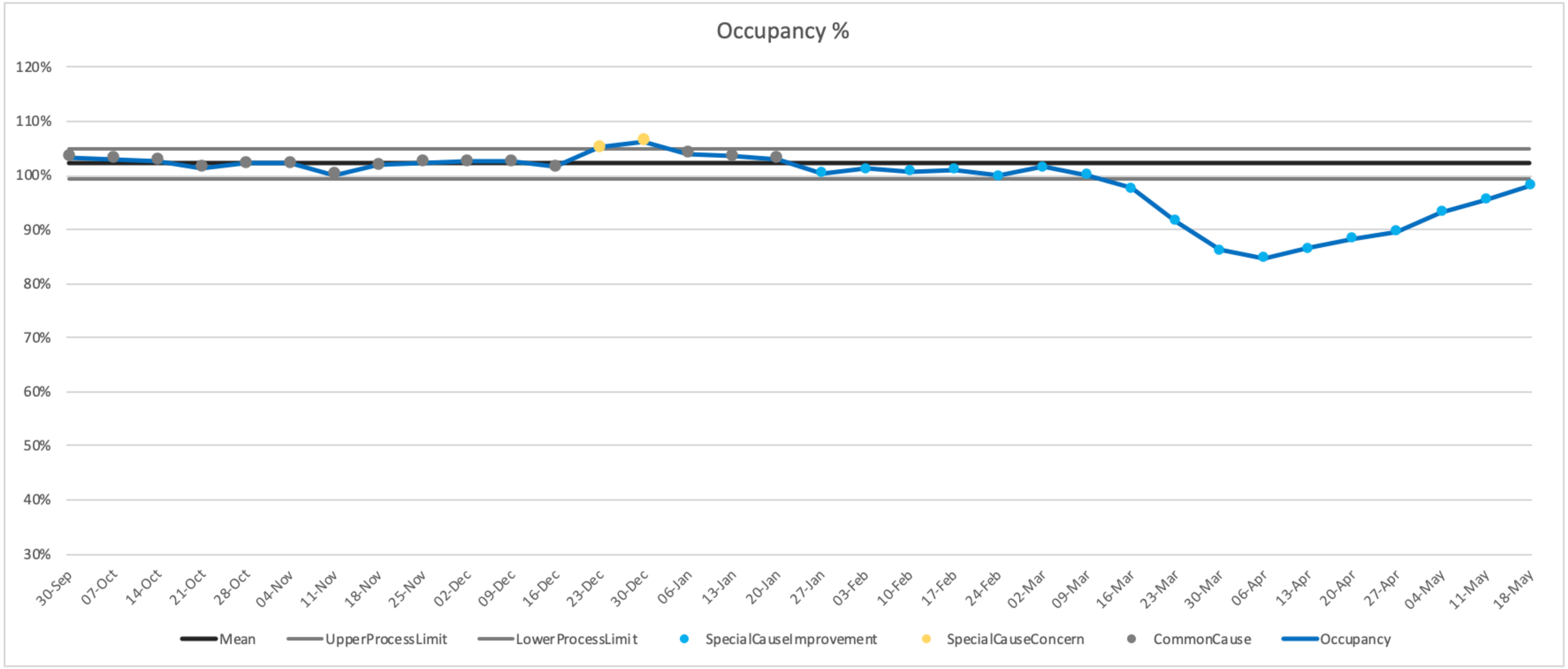
Referrals for Adult Assessment early June 2020

Include Upper Process Line



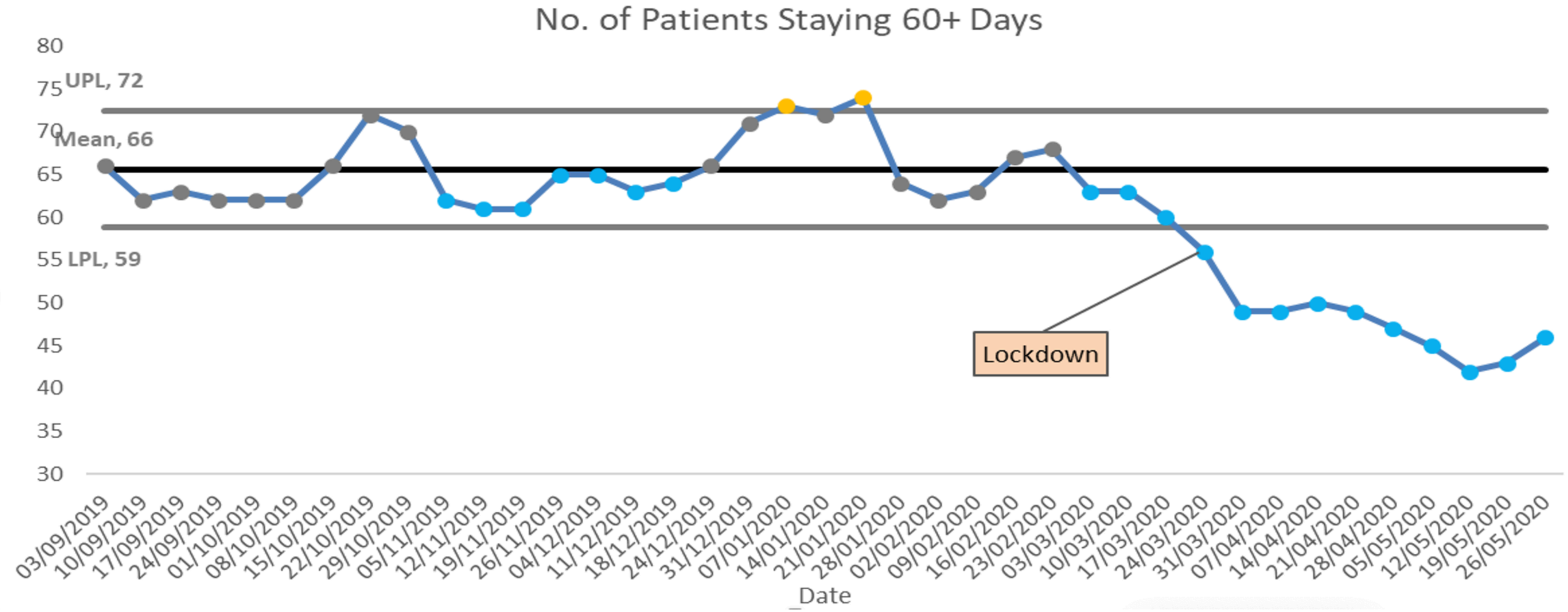
Occupancy % by Week

Select TRUST - Total Acute



Reduction in bed occupancy driven by less longer stay patients

Admissions / Discharges were stable



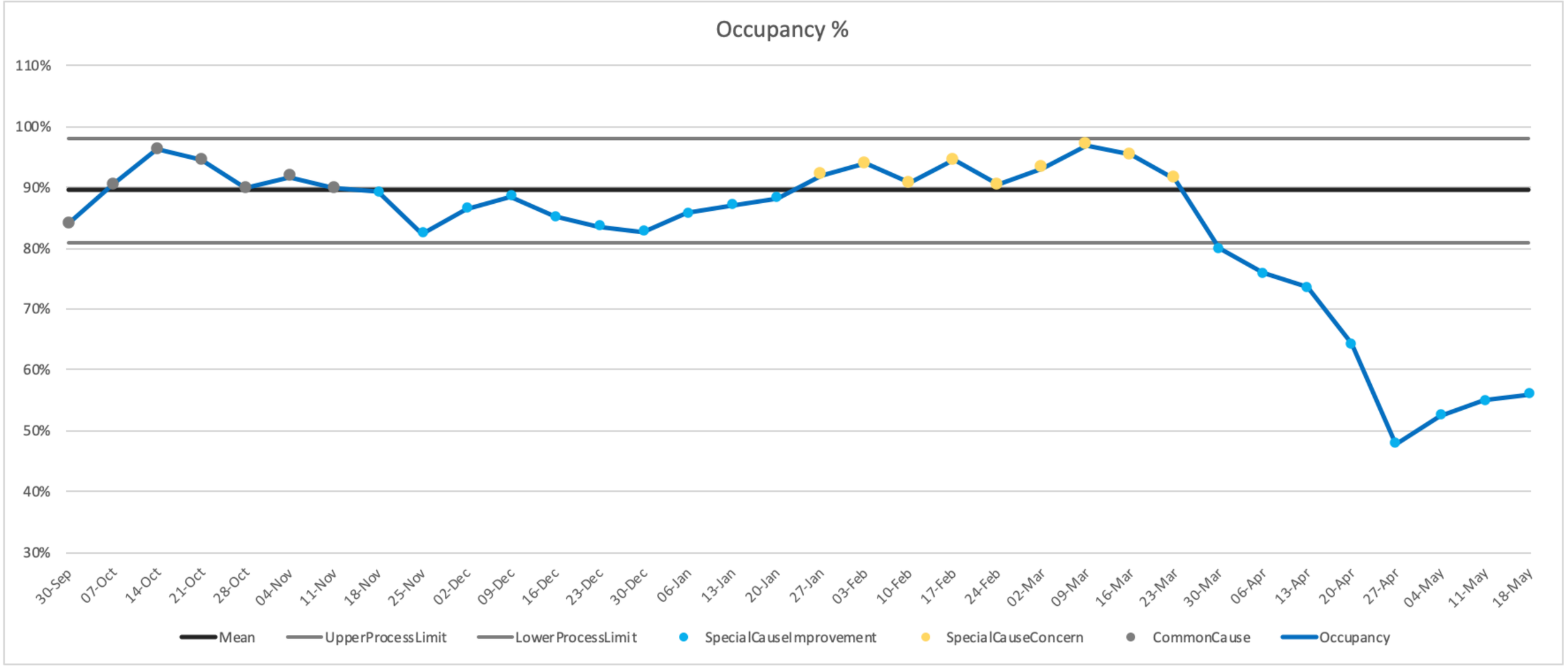
Occupancy % by Week

Select TRUST - Dementia

Notes:

Total Acute includes Working Age, Older Adult Functional and PICU

Older Adult includes integrated and Older Adult Wards



Pressures

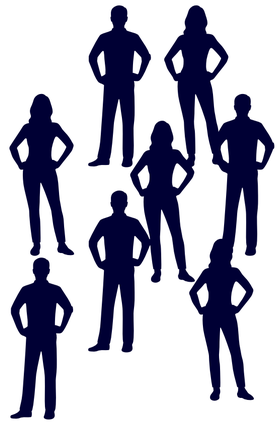
- Assessment - waiting times will increase - prioritise clinical need
- Unallocated cases - presently at full capacity - treatment delayed, risks of deteriorating health / harm
- Current caseloads - increased morbidity, focus on most unwell
- Crisis team - required to manage higher numbers
- Inpatient beds - increased demand
- Staff burnout
- Junior doctors transferred to acute hospitals

Areas of concern

- Black and Minority Ethnic Population
- Deprived areas
- Traditional Industrial Structures
- Older Working Age (50-65 year olds)
- People in debt
- Chronic Health Conditions
- Children - particularly in most deprived areas
- Domestic Violence
- Impact of Gatwick related unemployment
- Mental health services already stretched e.g. Crawley
- Delayed Transfers of Care reducing inpatient bed capacity
- No appropriate accommodation for mental healh patients blocking inpatients beds

Modelling the impact on MH system

Pathways are more complex than depicted in previous slides



PRIMARY CARE MENTAL HEALTH

SECONDARY CARE MENTAL HEALTH

URGENT CARE

REFERRALS / ASSESSMENTS

ADULT

OLDER AGE

CASELOADS

CRISIS CARE

INPATIENT

Effects of latency and age-structure on the dynamics of COVID-19 in Sussex

K.B. Blyuss & Y.N. Kyrychko

Department of Mathematics, University of Sussex,
Falmer, Brighton, BN1 9QH, UK,
k.blyuss@sussex.ac.uk, y.kyrychko@sussex.ac.uk

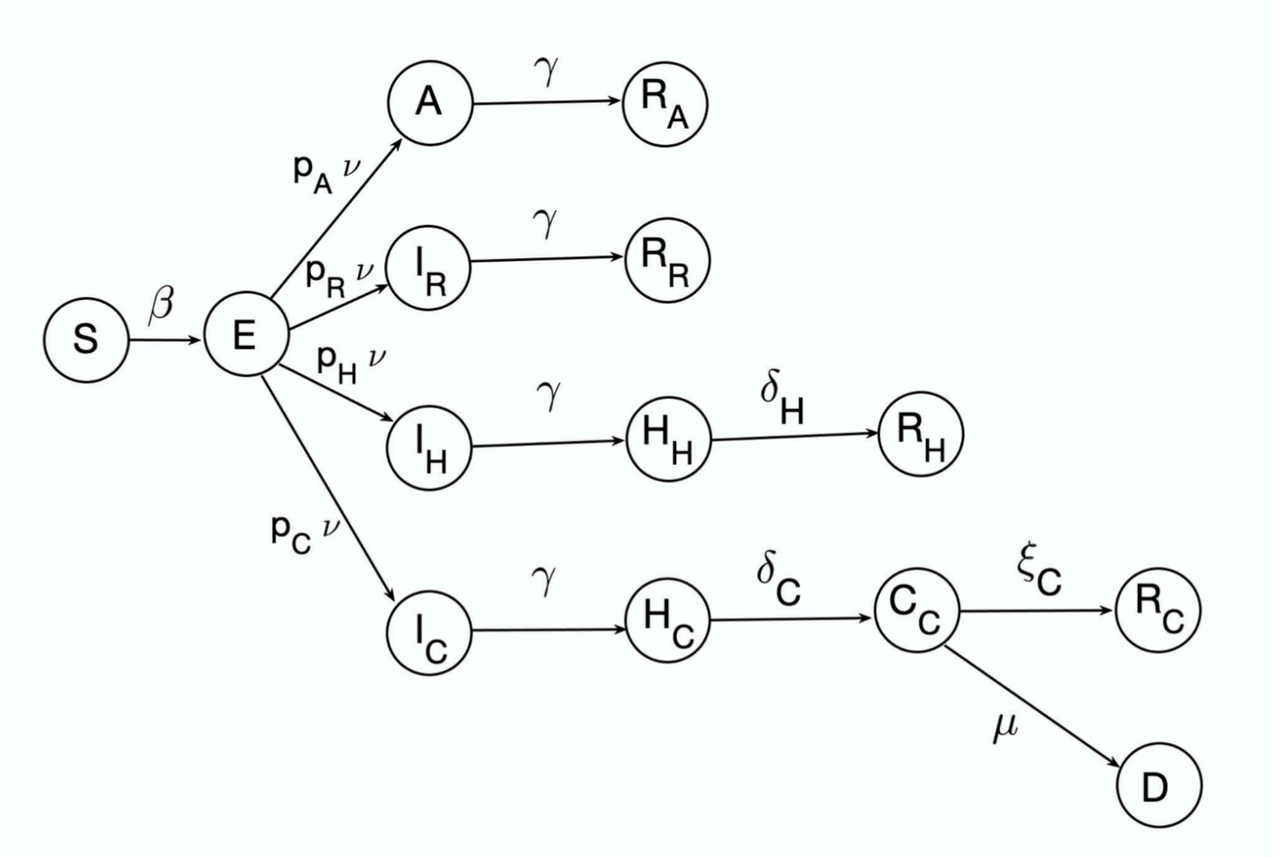


Figure 2: Diagrammatic dynamics

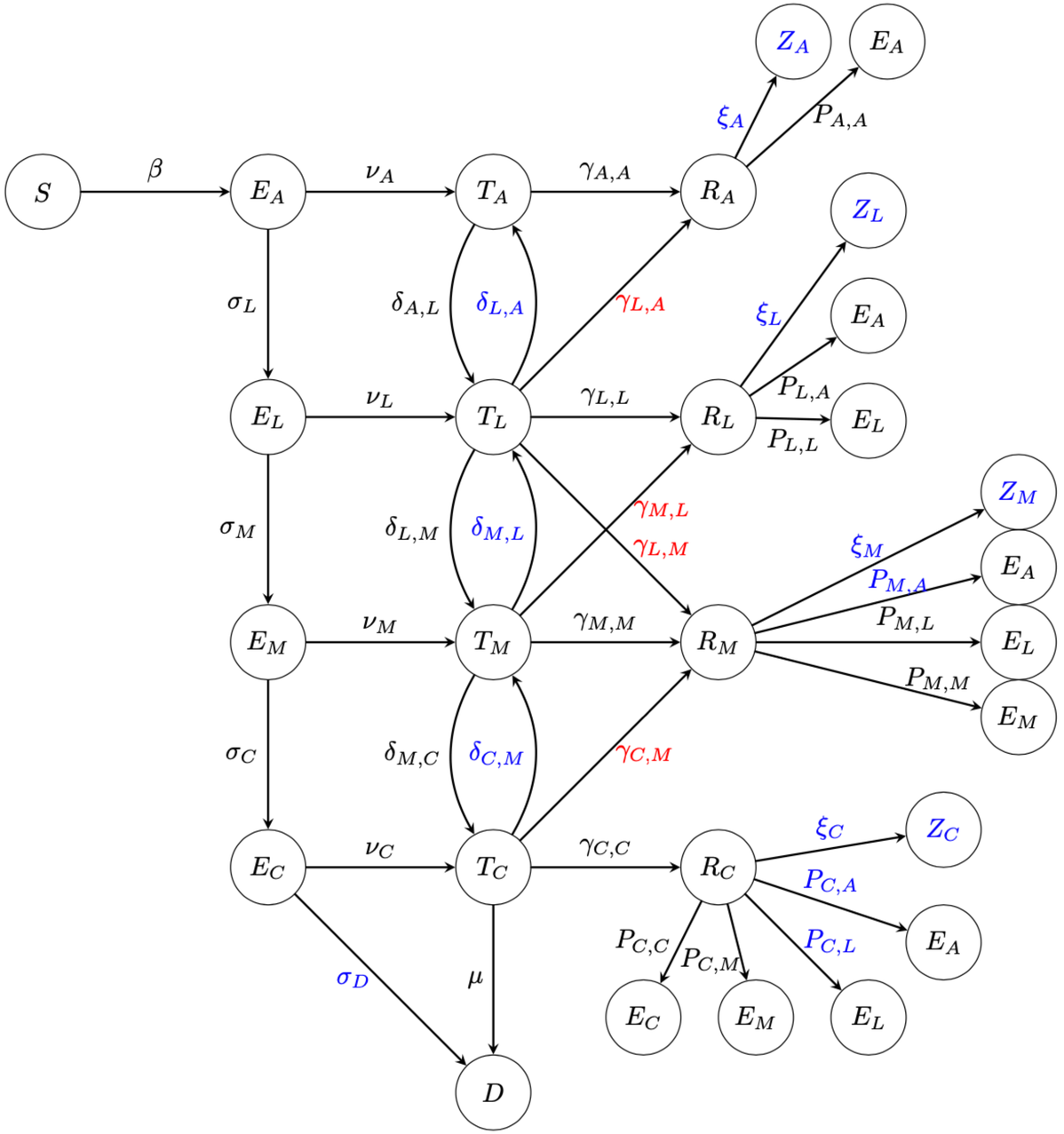
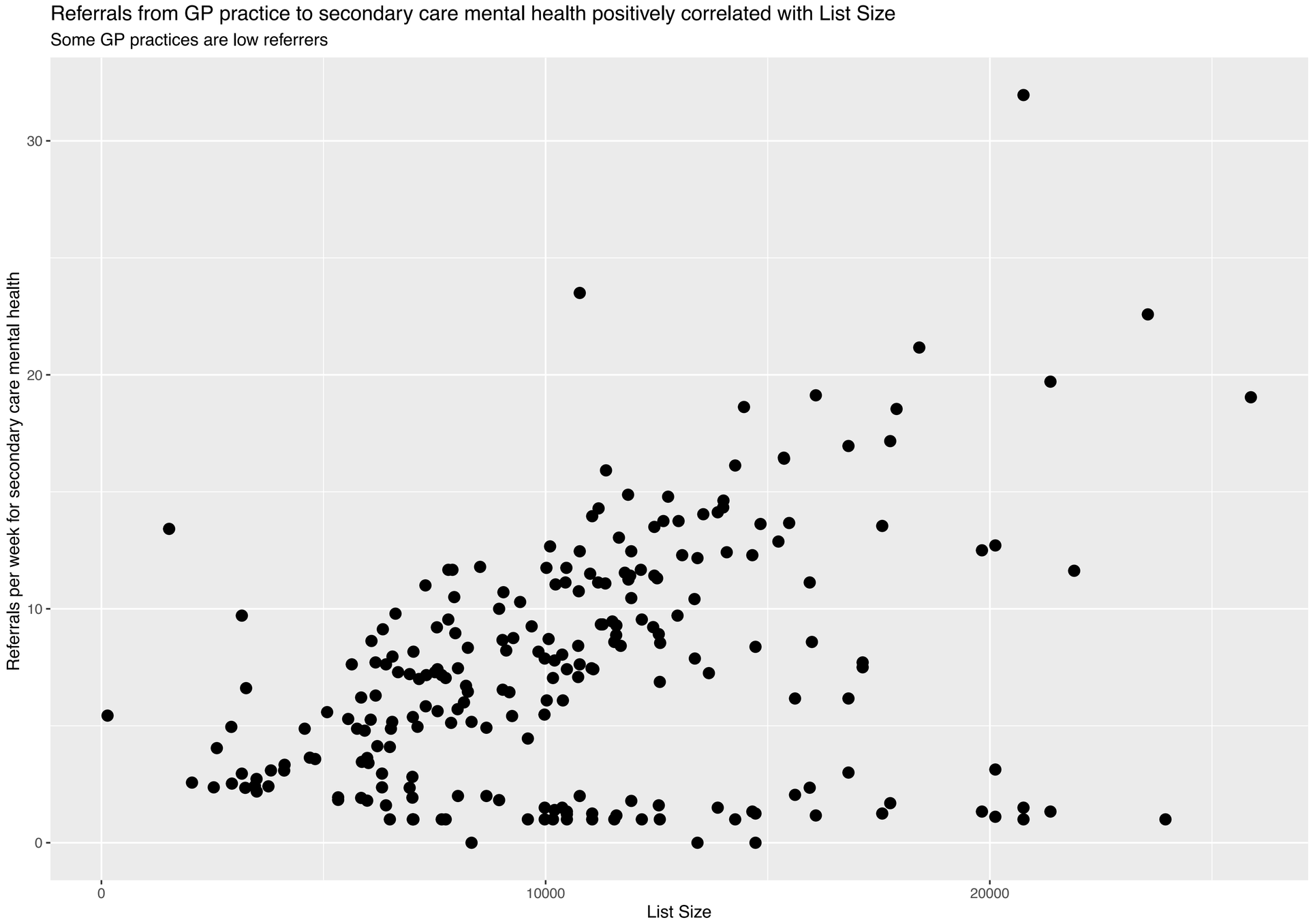


Figure 1: Schematic for mental health model

Early Warning Signs and Indicators

	What might this exploratory analysis show up – how would that then lead to an understanding of future surge All learning can be used for potential subsequent surges
NHS111 Sussex MH line	
SECAMB data	
Primary care level	SMI register? Conversion rate from SMI register to -IAPT -secondary care Prescribing data; -changes to numbers being prescribed -changes to doses -benzos
Voluntary sector	Community hubs data
Homelessness	Will downturn impact levels and therefore mental health needs?
MHA Data	S136 data - changes in conveyance away from A&E ; need to unpick system change compared to real change Lockdown eases, potential for unwell patients to become more visible - indication of hidden morbidity
Deferred demand	• Service users • not presenting • decreased contacts • worsening symptoms • access to medication **Basics - age, demographics, location, IMD deciles, ethnicity]**
Perinatal mental health	Volume of activity - recent reduction has potentially returned to normal levels
Social Care Data	Can we identify MH calls?
Carer related data	

Incidental Findings that Support Transformation


Referrals from GP practice to secondary care mental health positively correlated with List Size
Some GP practices are low referrers
Referrals per week for secondary care mental health
30
20
10
0
0
10000
20000
List Size

Referrals from GP practice to secondary care mental health positively correlated with List Size

Some GP practices are low referrers, particularly in West Sussex, and three stand out as high referrers