NHS
Blood and Transplant

Whole Blood Capacity

14/09/20

Caring Expert Quality

Executive Summary: We have a plan in place to largely restore collections, though some further action may be required

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- Following lock-down, NHSBT has **experienced declining blood stocks**, primarily driven by **NHSBT capacity constraints** (vs. donor-side willingness)
  - **Social distancing:** Over 60% of venues were impacted by social distancing, creating substantial capacity constraints. Even after moving to larger sessions and optimising layouts, social distancing constrains our capacity to collect by ~10% in mobile sessions and ~20-30% in fixed centres
  - **CVP capacity lending:** Social distancing issue was exacerbated by the conversion of WB / CD slots into CVP during the ramp-up period (equivalent to ~24,000 WB slots), which could have been used to increase WB stock instead (equivalent to 3-4 extra days of stock)
  - **Staffing limitations**: During the peak, (1) high staff absence due to sickness / shielding, (2) introduction of COVID triage process staffed by donor carers, and (3) staff movement to CVP lowered bookable appointments and increased NHSBT-led cancellations; though many of these issues have been resolved, WB staff 'gaps' remain ~6-7 ppts higher than pre-COVID
  - **Limited impact – Donor base:** National fill rates remained largely stable at ~94% during the peak, suggesting donor-side issues (e.g. reluctance to go to city centres, donors over 70+ being told not to donate) were not critical constraint; however, as capacity has been added at short notice in donor centres, recent fill rates have been falling (particularly in donor centres)
- Despite meaningful efforts to increase collections, we are currently in **High Amber banding: collections have not been fully restored to pre-COVID levels** (still ~10% lower), while **demand has recovered to a greater extent** (~5%-10% lower vs. pre-COVID), suggesting a potential **risk for future stock levels**
- Our **risk levels depend largely on our expectations for blood demand** – though it may restore to 100% by end of September, it may also remain slightly lower, or perhaps even fall further in the event of a 2nd wave, suggesting both **WB and CVP are unlikely to see very strong demand at the same time**
  - **Low demand scenario –** If blood demand stabilises at last 4-week average (~25.4K) we can expect to build stock to stabilize and potentially evert to green by October
  - **High-demand scenario –** However, if blood demand is entirely restored in September (~26.8K), we can expect stocks to decline and fall into red in October and beyond
- In **September**, we are **stabilising stock levels** primarily by **borrowing unutilised CVP capacity** – but also have an **ongoing action plan** to boost the resilience of our **WB capacity on a standalone basis**, with identified initiatives expected to restore collections to at least ~95% of pre-COVID levels by December
- To further **build resilience and restore collections to 100%,** we are scoping out **additional initiatives** (e.g. new centres, expanding programmes of mobile teams); since **recruiting / training** may be rate limiting factor for some of these initiatives, we are developing a forward-looking integrated capacity and WTE database for all blood components to inform trade-offs as required

Following lockdown, blood demand has recovered to a greater extent than blood supply – with stock levels currently Amber

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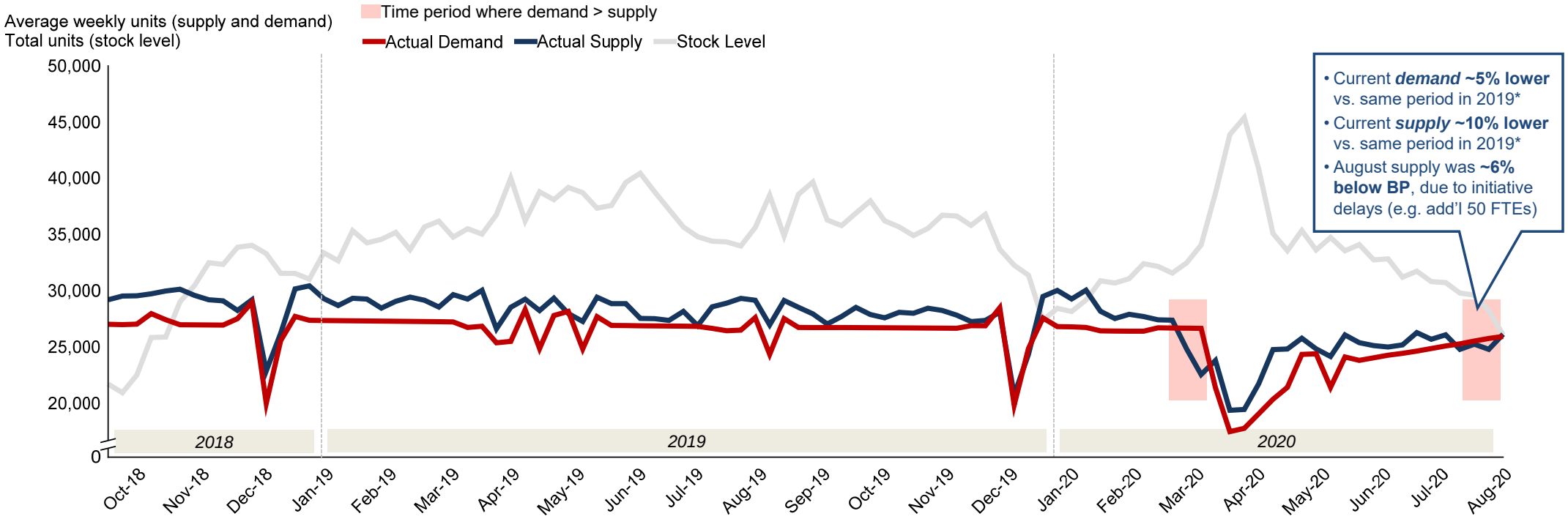

	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20
Avg. weekly demand*	27,268	27,098	27,825	27,465	27,326	27,270	27,316	28,001	27,118	26,832	26,870	26,901	26,732	26,700	27,441	26,999	26,432	25,638	19,725	24,385	24,153	24,988	25,763
Avg. weekly supply*	29,519	29,742	28,866	29,663	29,043	29,214	29,533	28,674	28,684	27,719	29,138	28,086	28,037	28,146	27,585	29,725	27,848	25,208	23,265	25,324	25,369	25,726	25,412
Avg. DOS	4.4	5.9	6.6	6.3	6.9	7.1	7.2	7.6	8.0	7.4	7.2	7.7	7.5	7.3	6.6	5.5	6.3	6.8	9.7	8.0	7.6	6.7	5.5

Note: *Current average defined as average supply over July and August 2020, excluding any weeks that contain bank holidays
Source: Stock levels and DOS from Planning Team, Daily demand and collection data from Planning Team

Reduction in appointment capacity mainly drove reduction in blood supply, while donor availability has not been constraint

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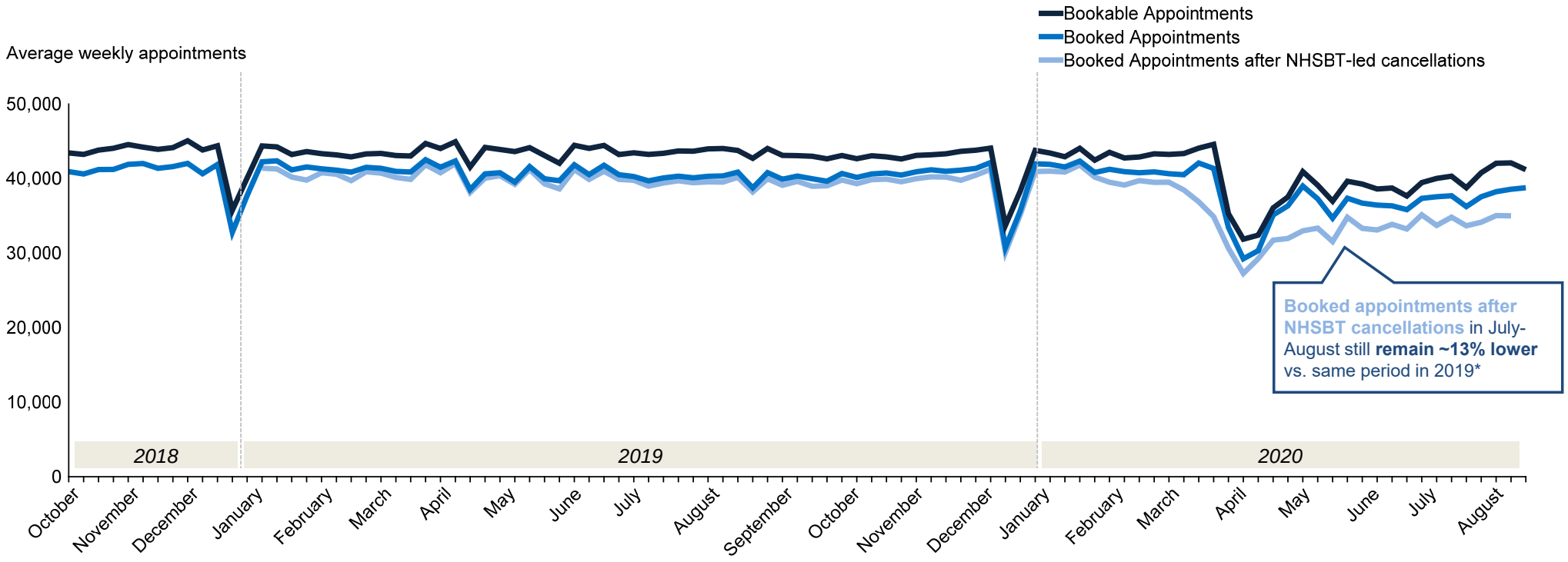

Avg. weekly booked appointments not cancelled by NHSBT*				40,673	40,507	40,663	41,070	40,272	40,500	39,471	39,762	39,345	39,730	40,007	40,499	41,168	39,650	37,854	30,502	33,178	33,672	34,341	34,732
Avg. weekly fill rate*[1]	94%	94%	93%	95%	95%	95%	94%	93%	93%	92%	92%	93%	94%	95%	95%	96%	95%	94%	95%	95%	94%	94%	92%

Relatively stable overall fill rates in March / April suggests drop in collections was **not donor-driven**

Note: *Average excludes any weeks that contain bank holidays; [1]Fill rate = total booked appointments / total bookable appointments
Source: Daily demand and collection data from Planning Team

Our collection levels mainly fell due to social distancing and staffing issues, which continue constraining our supply

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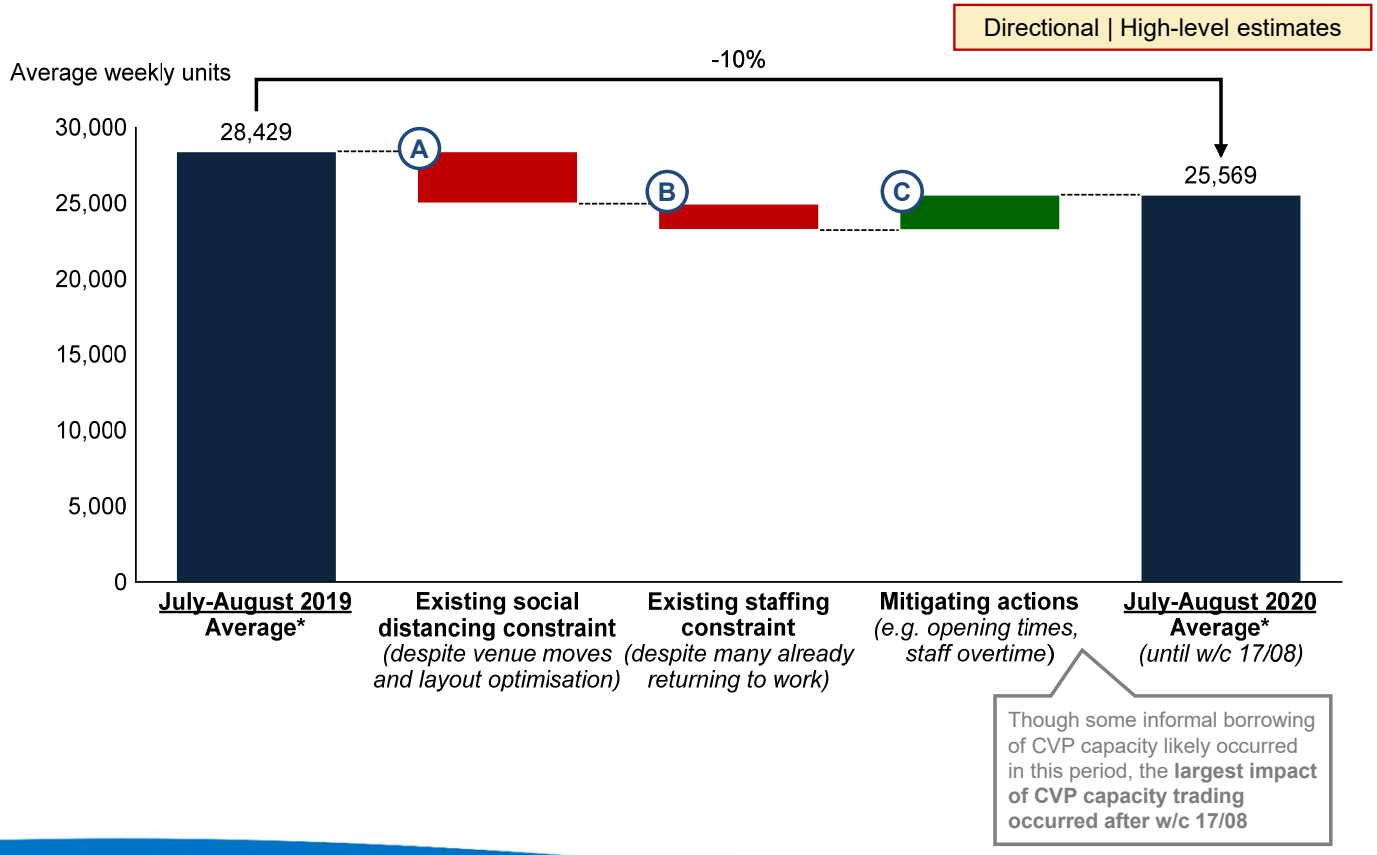
Collections are still constrained by social distancing and staffing issues



Assumptions/commentary

A Social distancing: Our current capacity remains **~12% limited by social distancing restrictions**

- 20% current constraint in DCs (excl. add'l CVP slots, staff overtime, and other mitigating actions), exacerbated by needing to accommodate CVP collections in same site
- 10% current constraint in mobile sessions, following efforts to move to larger venues and optimise layouts

B Staffing constraints: Our staff absence rate still leading to **6%-7% constraint** vs. pre-COVID

- **COVID triage process** initially conducted by donor carers limited staff available for collection, now largely resolved
- **Staff sickness / shielding:** During the peak, ~12% staff were absent given COVID, though currently only 2%
- **Staff movement to CVP:** ~90 WTE shifted from WB to CVP (not including OT), some of which still within CVP, thereby driving ~5% ppts incremental WB 'staff absence'

C Mitigation actions: The **existing impact of social distancing and staffing constraints** has been partly mitigated by extending **opening times with staff overtime**

Note: *Average excludes any week that contains a bank holiday – and only goes up to w/c 17/08
Source: Daily demand and collection data from Planning Team

In addition, to support ramp up of c~23% CVP capacity, c24,000 WB appointment were lost (3-4 DOS equivalent)

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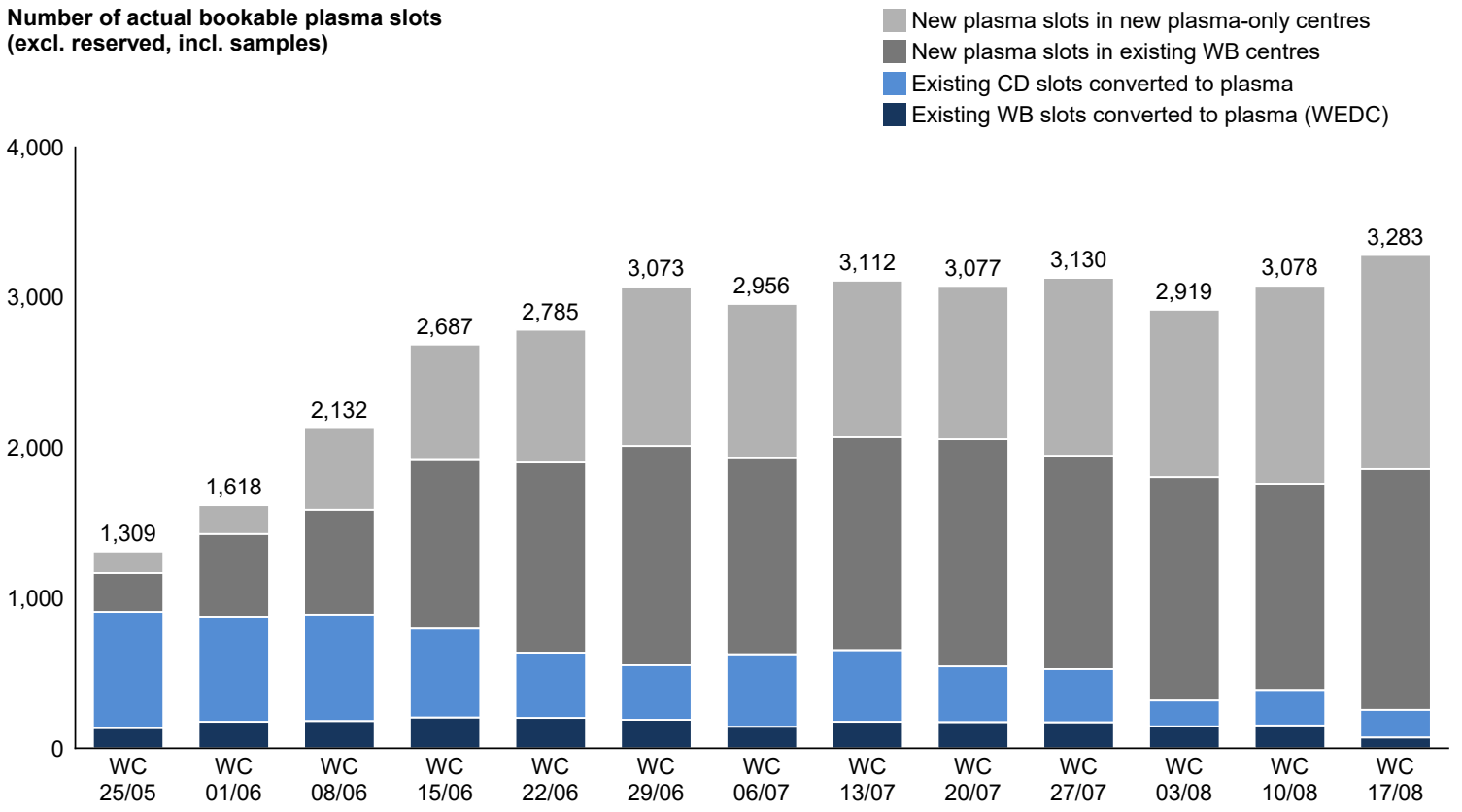
Number of actual bookable plasma slots (excl. reserved, incl. samples)



Total CVP slots

35,159

11,716

15,478

5,842

2,123

In addition to offering capacity slots, WB also supported CVP with ramp-up in other ways (e.g. staff training)

Impact on WB slots

- No direct impact; BAU staff support training of new staff
- Some capacity (extra runs, overtime) could have been used to increase collections
- ~17,526 WB lost slots
- ~6,369 lost WB slots

Note: Assuming 1 plasma donation slot is equivalent to 3 sample plasma slots, 3 whole blood donation slots, or 0.5 CD slot; Birmingham is assumed to be a new plasma-only centre for the whole period, as majority of plasma slots were on the 4th floor for CVP; 50% of WEDC's plasma sample and donation slots are assumed to be existing WB slots converted to plasma

In Sep./Oct., we expect to increase WB collections primarily by leveraging unutilised CVP capacity and reducing cancellations

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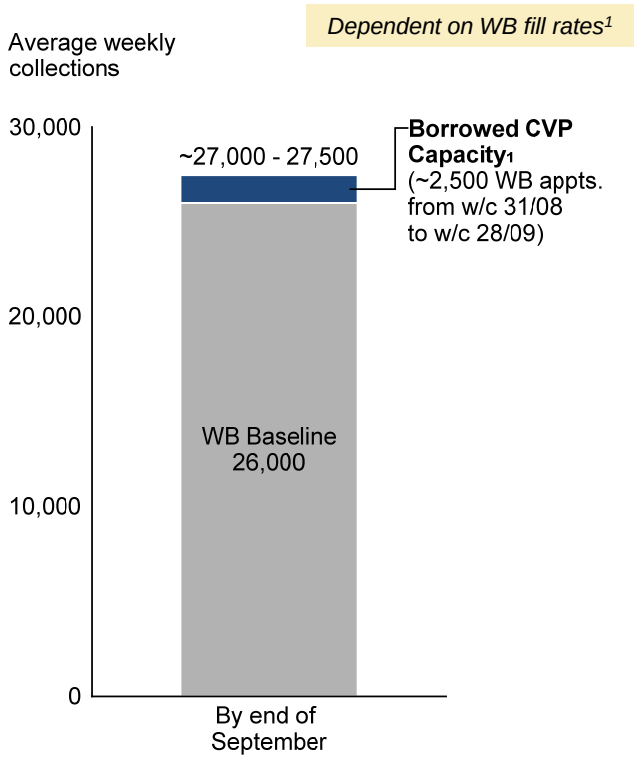
WB Collection Levels



CVP Fill Rates by Centre

Centre	CVP Fill Rate*	# CVP Slots converted into WB in September**	
WEDC	n.a.***	1,548	37%
Bexleyheath	22%	616	15%
Twickenham	24%	616	15%
Stratford	47%	488	12%
Oxford	35%	217	5%
Lancaster	35%	201	5%
Bristol	31%	167	4%
Leeds Bridle Path	15%	160	4%
Southampton	31%	92	2%
Liverpool Speke	40%	53	1%
Luton	43%	40	1%
Leeds	19%	15	0%
Poole	15%	14	0%
		4227	100%

Centre	CVP Fill Rate*	# CVP Slots converted into WB in September**	
B'ham 4thF	30%	0	0%
Bradford	63%	0	0%
Cambridge	45%	0	0%
Edgware	100%	0	0%
Gloucester	50%	0	0%
Leicester	44%	0	0%
Liverpool	82%	0	0%
Manchester NH	44%	0	0%
Manchester PG	19%	0	0%
Newcastle	19%	0	0%
Nottingham	72%	0	0%
Plymouth	69%	0	0%
Sheffield	93%	0	0%

(1) Chart shown assumes NSHBT can reach 92% fill rates on all WB slots converted from CVP by end of September, gradually ramping up (33%,62%,77%,92%) – and consistently maintaining 65% conversion rate

Note: *Fill rate for the week 14/09/2020 – 20/09/2020; **Total CVP appointments converted to WB appointments from w/c 31/08/2020 to w/c 28/09/2020 (inclusive); ***WEDC has not listed any CVP slots in their grid to the end of September

Source: NHSBT Planning Data

WB slots used to ramp-up CVP would be of similar magnitude to CVP slots now being borrowed by WB in September and October

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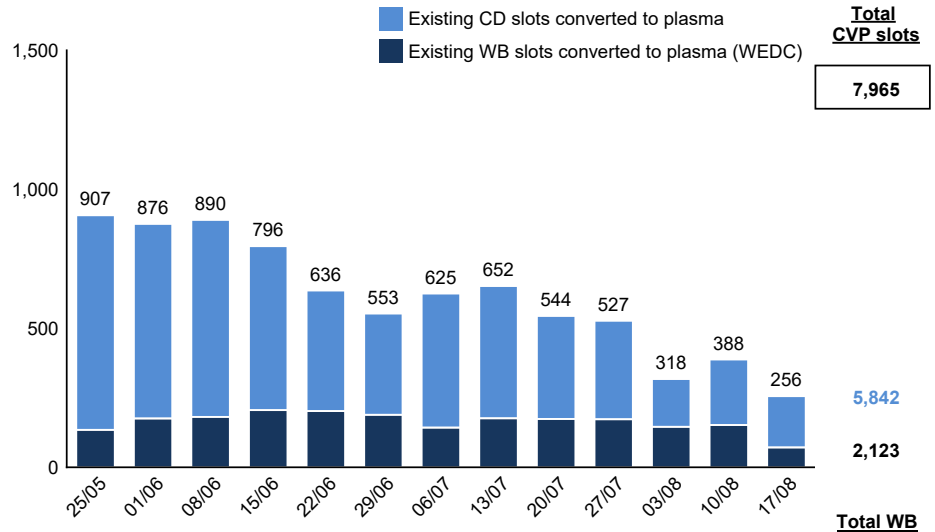
~8,000 CVP slots came from borrowed WB/CD slots during ramp-up…

From WB to CVP

Number of actual bookable plasma slots repurposed from CD / WB during ramp-up period
(excl. reserved, incl. samples)

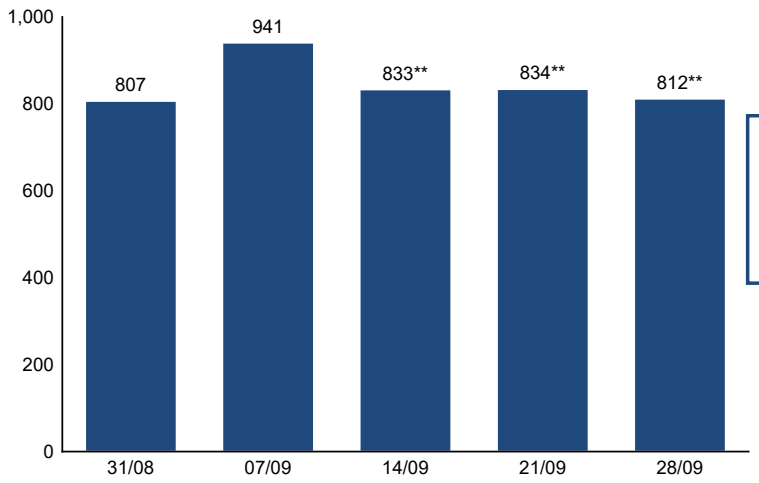


	25/05	01/06	08/06	15/06	22/06	29/06	06/07	13/07	20/07	27/07	03/08	10/08	17/08	Total CVP slots
WB Slot Equiv. (CD slots)	2,316	2,100	2,124	1,770	1,302	1,092	1,446	1,428	1,110	1,062	516	708	552	**17,526**
WB Slot Equiv. (WB alone)	404	527	545	617	606	567	429	528	522	519	437	455	215	**6,369**
														7,965
														5,842
														2,123
														Total WB slots

… while ~4,200 unfilled CVP slots have been repurposed to WB in September with an addition ~3,000 planned for October

From CVP to WB

Number of actual bookable plasma slots repurposed* into WB slots over September



Total CVP Slots

4,227

For October, add'l CVP slots estimated at ~3,000, but will depend on CVP fill rates

	31/08	07/09	14/09	21/09	28/09	Total WB slots
WB Slot Equiv.	2,420	2,822	2,500	2,502	2,436	**12,680**

Note: Assuming roughly 3 WB slots per 1 CVP slot; *Majority of these slots were proactively offered by CVP team, but a smaller proportion being repurposed local at DC level; **In addition to these, 502 CVP slots have been offered to WB, though it is still being confirmed how many of those slots can actually be converted from a staffing perspective (potential maximum number of 1,506, though will most certainly be lower given operational constraints)
Source: NHSBT Planning Data

To fully leverage borrowed CVP capacity, we need to ensure to maintain fill rates, which have declined recently as capacity has been added at short notice

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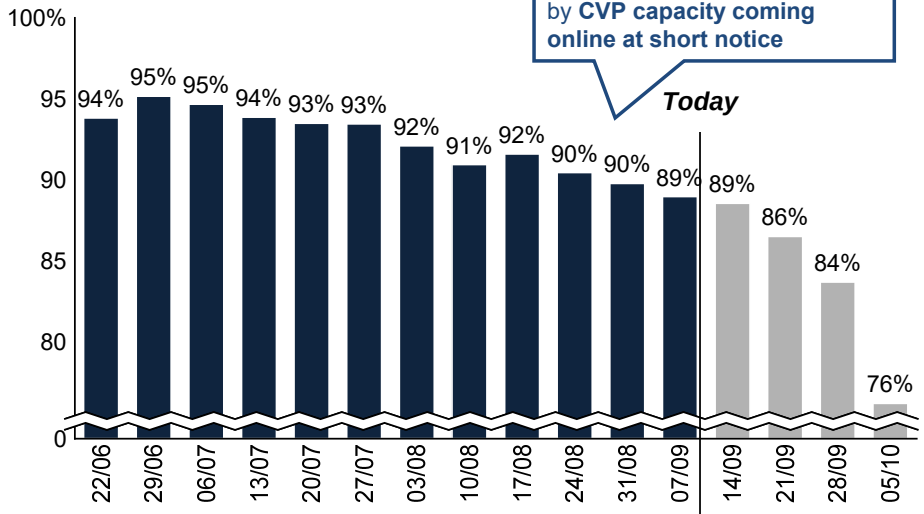
Fill rates declining mainly due to short-notice surge capacity

WB average weekly fill rate
(currently booked appointments / bookable slots)

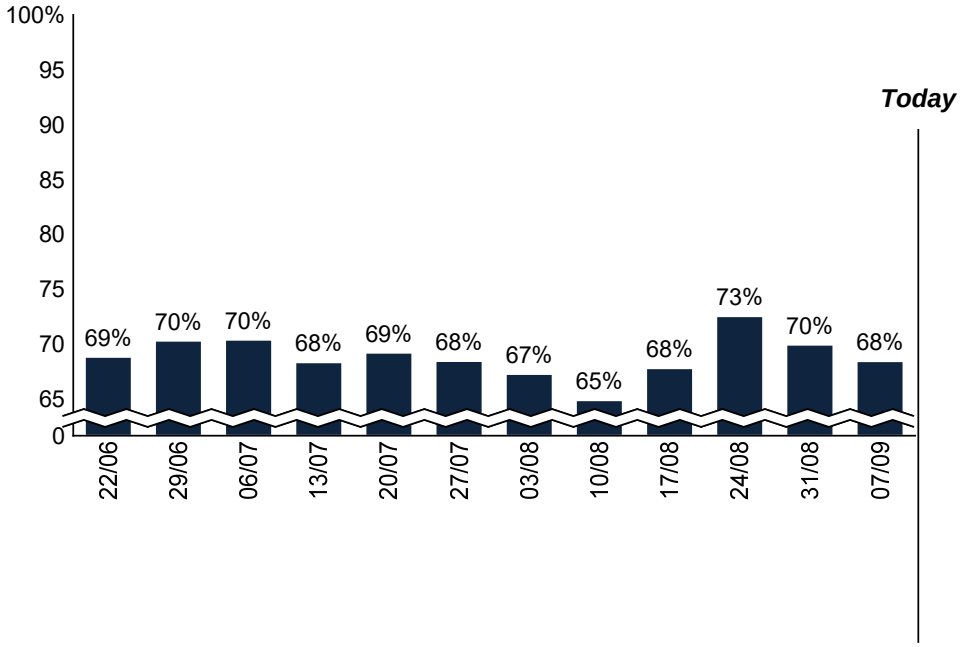
We are **currently falling short of the plan**, mainly due to lower than assumed fill rates 89% vs. plan 92% in Sep., partly driven by **CVP capacity coming online at short notice**



	22/06	29/06	06/07	13/07	20/07	27/07	03/08	10/08	17/08	24/08	31/08	07/09	14/09	21/09	28/09	05/10
Donor Centre	90	95	93	90	91	90	88	89	87	73	76	73	73	61	52	33
Mobile	94	95	95	95	94	93	93	92	93	92	95	95	94	96	95	91

Conversion rates have not declined with increase in capacity

WB average weekly conversion rate
(successful donations / bookable slots)



Even if we fully deliver against planned initiatives, our October stock position is fairly dependent on demand scenarios

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Scenario #1: Demand at 100% by September

- **Demand:** Demand fully restored in September (circa 26.8K)
- **Collections:** Action plan delivered on time, in-full (with ~92% fill rates)

Date	A-	A+	B-	B+	O-	O+	AB-	AB+	Total
14/09/2020	9.0	5.0	5.0	6.9	6.5	4.2	5.7	8.3	5.5
21/09/2020	8.8	5.0	4.8	6.5	6.0	4.4	5.9	7.8	5.4
28/09/2020	8.6	5.0	4.6	6.1	5.5	4.5	6.0	7.2	5.3
05/10/2020	8.7	5.1	4.6	5.9	5.2	4.7	6.4	7.0	5.4
12/10/2020	8.3	4.9	4.2	5.3	4.4	4.7	6.3	6.3	5.0
19/10/2020	8.0	4.7	3.9	4.7	3.8	4.6	6.4	5.6	4.8

Stocks levels would fall and likely fall into Red by end of October

Scenario #2: Demand stabilises at 95%

- **Demand:** Demand stabilises at ~95% (circa 25.4K)
- **Collections:** Action plan delivered on time, in-full (with ~92% fill rates)

Date	A-	A+	B-	B+	O-	O+	AB-	AB+	Total
14/09/2020	9.0	5.0	5.0	6.9	6.5	4.2	5.7	8.3	5.5
21/09/2020	8.8	5.4	5.1	6.8	6.4	4.6	6.3	8.7	5.7
28/09/2020	8.6	5.8	5.1	6.7	6.2	5.0	6.9	9.1	5.9
05/10/2020	8.6	6.4	5.3	6.9	6.3	5.5	7.8	9.8	6.3
12/10/2020	8.1	6.5	5.1	6.6	5.9	5.6	8.1	10.0	6.3
19/10/2020	7.7	6.7	4.9	6.3	5.5	5.7	8.5	10.3	6.3

Stock levels would grow and stock could return to green band in October

In early September, demand is up but still remains c3.5% below our forecast, which assumes full restoration

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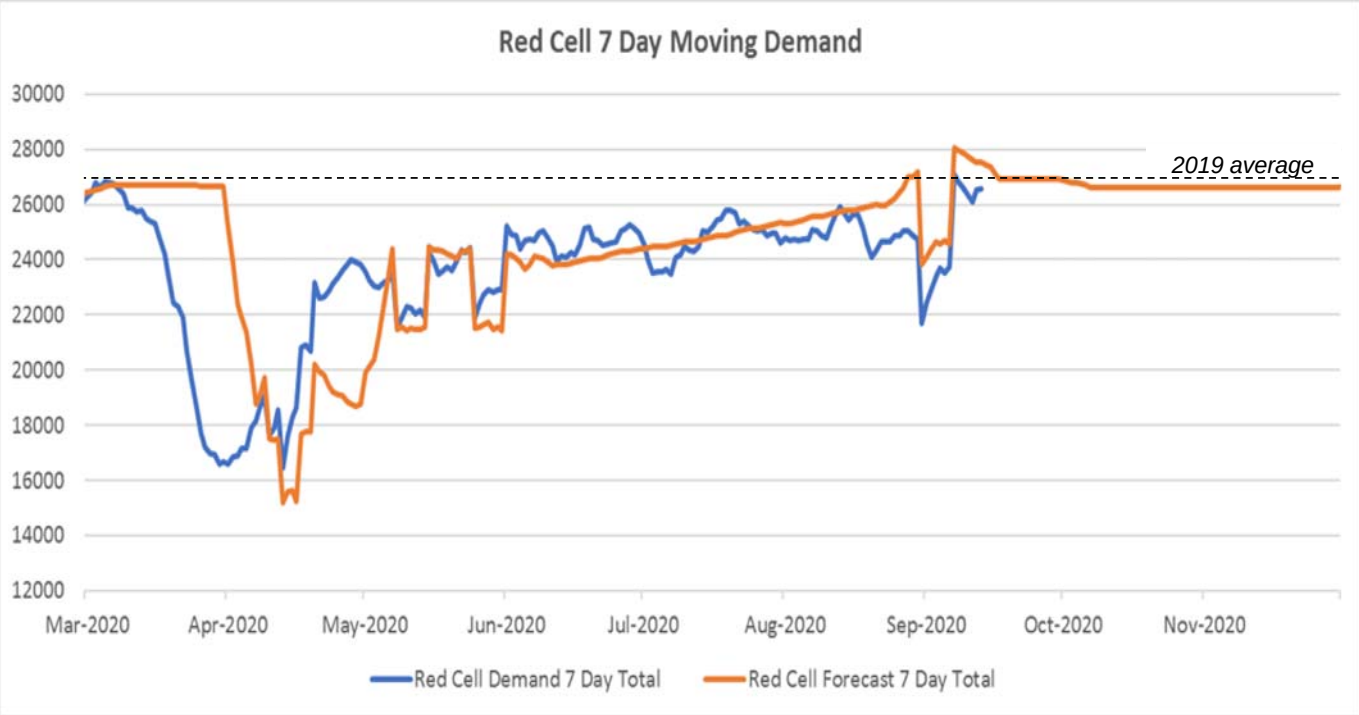

Based on demand forecast issued in June 2020

Week commencing	Actual RBC issues	% difference vs. forecast
03/08	24,858	-2.7%
10/08	25,640	-0.5%
17/08	24,607	-5.2%
24/08	24,658	-9.2%
31/08	23,717	-3.5%
07/09	26,540	-3.6%

Beyond October, we have a plan in place to increase standalone Whole Blood collection levels into December by 5-7%

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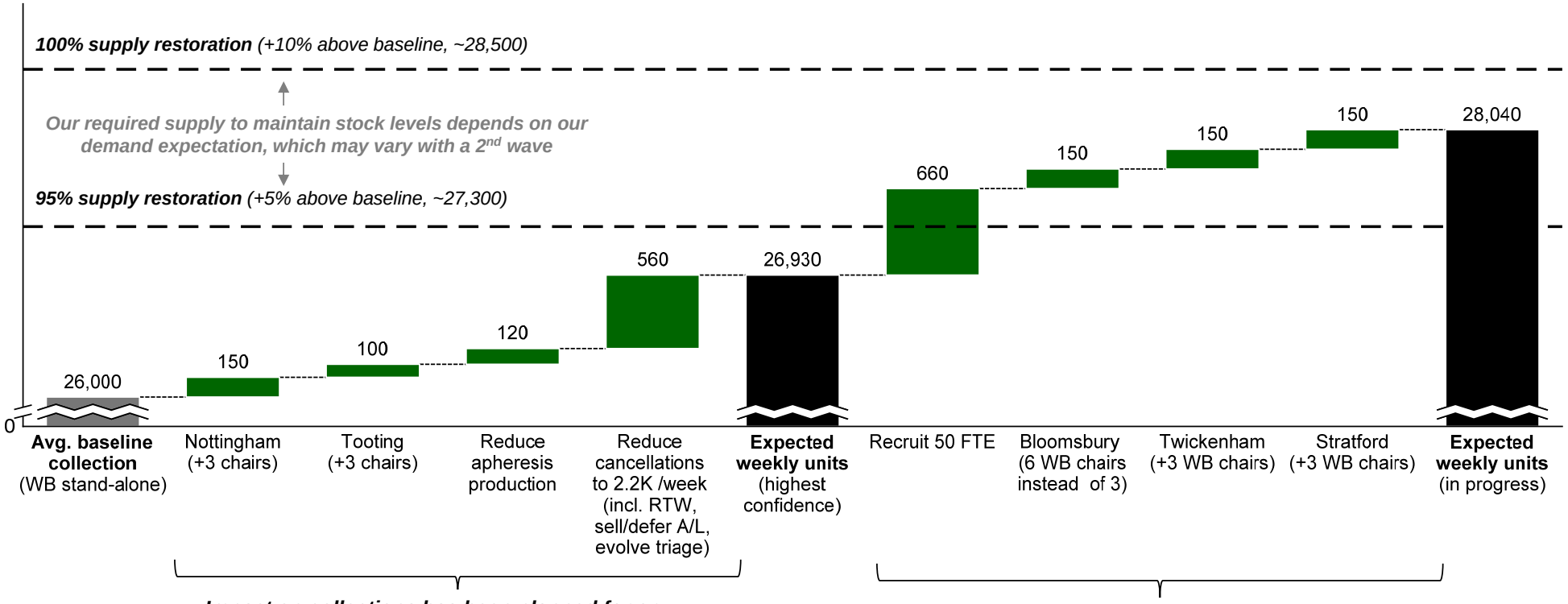
Preliminary | To be refined | Independent of CVP capacity | Included within integrated training plan

Forecasted average weekly units collected
(beyond October, build-up into December without CVP capacity)



Source: NHSBT Planning Team Estimates

Beyond our existing plan, we are considering other potential options to increase collections back to 100%

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Highest priority – to begin action as soon as possible

- **Establishing new 'pop up' sites** – likely in early 2021, given recruiting / training serves as critical pinch-point
- **Extending opening hours** – many sessions DC operate 7 days, but potential to extend some mobile teams from 8 days a fortnight to 9 days a fortnight or plan sessions for two or three days in a row (less set up and pack down time)
- **Increasing size of mobile venues** – where issue has not yet been resolved, exploring ideas to find larger venues e.g. reaching out to high-streets to take advantage of premises that remain closed

*Rate-limiting factor is speed at which we can recruit / train, but we are developing an **integrated capacity and WTE plan** to inform trade-offs where required*

Lower priority – to consider as/when required

- **Continue borrowing CVP capacity beyond October** – largely depends on CVP fill rates and evolution of 2nd wave
- **Requesting military support** – either for donations themselves (Korea example) or for nursing resources

Deprioritised – not feasible for the time being

- **Review social distancing policy to increase # chairs / session** – recent taskforce concluded PPE should be seen as 'last line of defence' (preference for 2M distance) and very limited benefit to introducing visors / screens
  - Donor Visors: Pinch-point is in waiting / tea area, where not feasible for donors to wear visors given they are consuming fluids
  - Screens – Mobile Sessions: Set-up and pack-down of screens may create further loss in capacity from staff time required
  - Screens – Donor Centres: Given lay-out and space to walk around the screens, this may actually increase total space usage