

Interested Parties Meeting:
Consideration of Need Determination
Calculation Adjustments due to
Changes in Utilization during the
2020 COVID-19 Pandemic

State Health Coordinating Council

February 23, 2021

Methodologies Examined

- LINAC
 - No statewide data yet
- MRI
 - No statewide data yet
- PET
 - No statewide data yet
- Operating room
 - LRA data from ambulatory surgical facilities only
- Acute care hospital beds
 - Preliminary HIDI data from Sheps Center

Equipment

- LINAC, MRI, PET
- Duke data shows clear evidence of decrease in utilization for 1-3 months in 2020.
- Alliance reports that utilization has not returned to pre-COVID levels.
- Although the data may show similar patterns elsewhere and in other settings, staff has no recommendation regarding methodology adjustments until all data is available from hospitals, freestanding facilities, and mobile providers.

Operating Rooms

- Examined data from Ambulatory Surgical Facilities, 2021 LRAs
- Do not yet have data from hospitals

Ambulatory Surgical Facilities: Impacts of COVID

Group	Average Number of cases 2020 Q3 & Q4	Average Case Time 2020 in minutes Q1 & Q2	Average Case Time 2020 in minutes Q3 & Q4	Average Case Time diff in minutes (Q3 & Q4 minus Q1 & Q2) [Median]	2021 LRA-2020 LRA cases % diff	2021 LRA-2020 LRA case time % diff	2021 LRA-2020 LRA surgical hours % diff
5	1630	39.38	43.95	4.57 [1.50]	-15.3%	5.9%	-8.2%
6	1828	74.58	83.95	9.37 [3.64]	-11.7%	6.8%	-6.2%

Group 5 = Primarily or exclusively Eye/ENT facilities

Group 6 = All other facilities

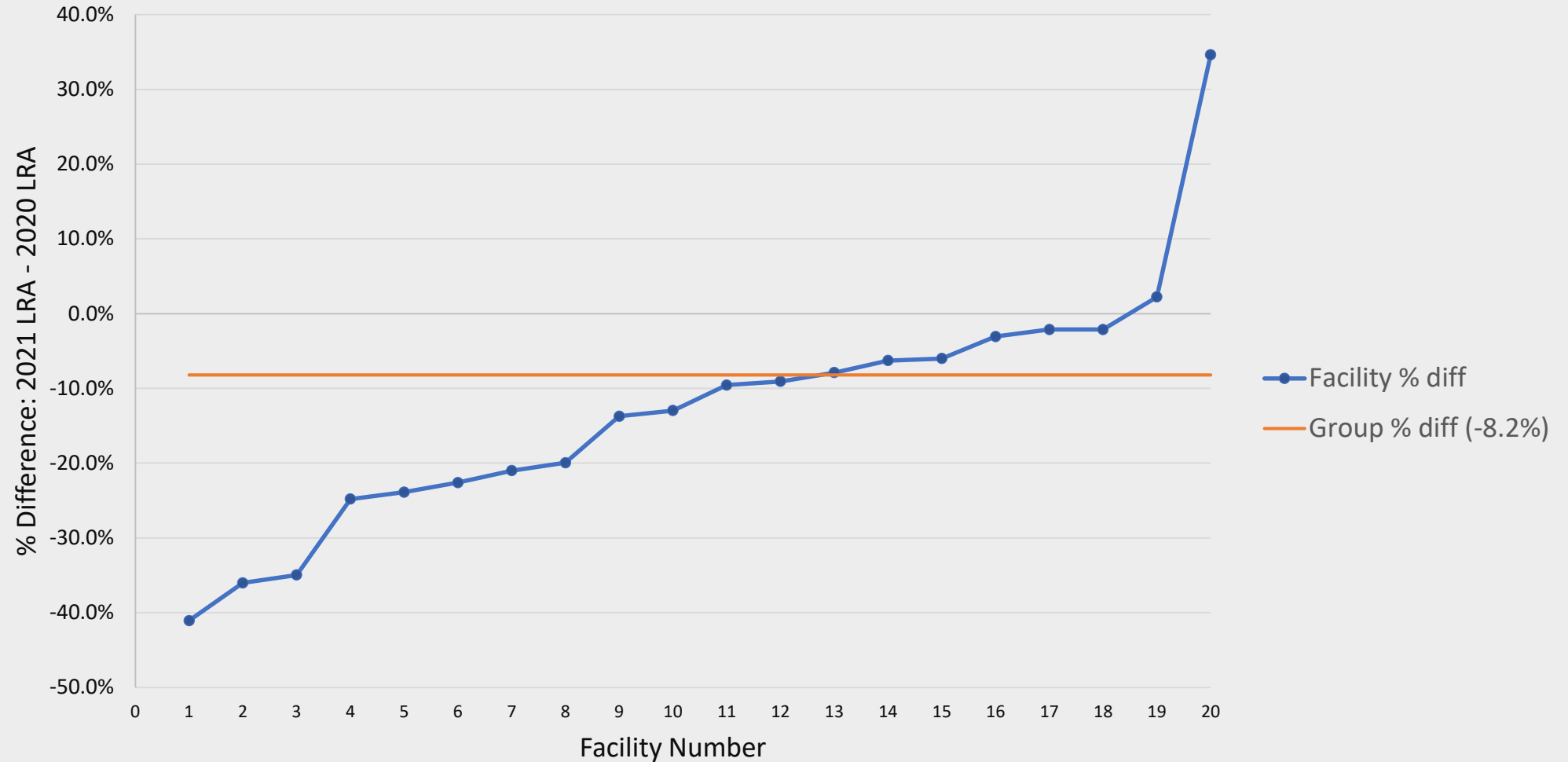
Q1 = October-December 2019

Q2 = January-March 2020

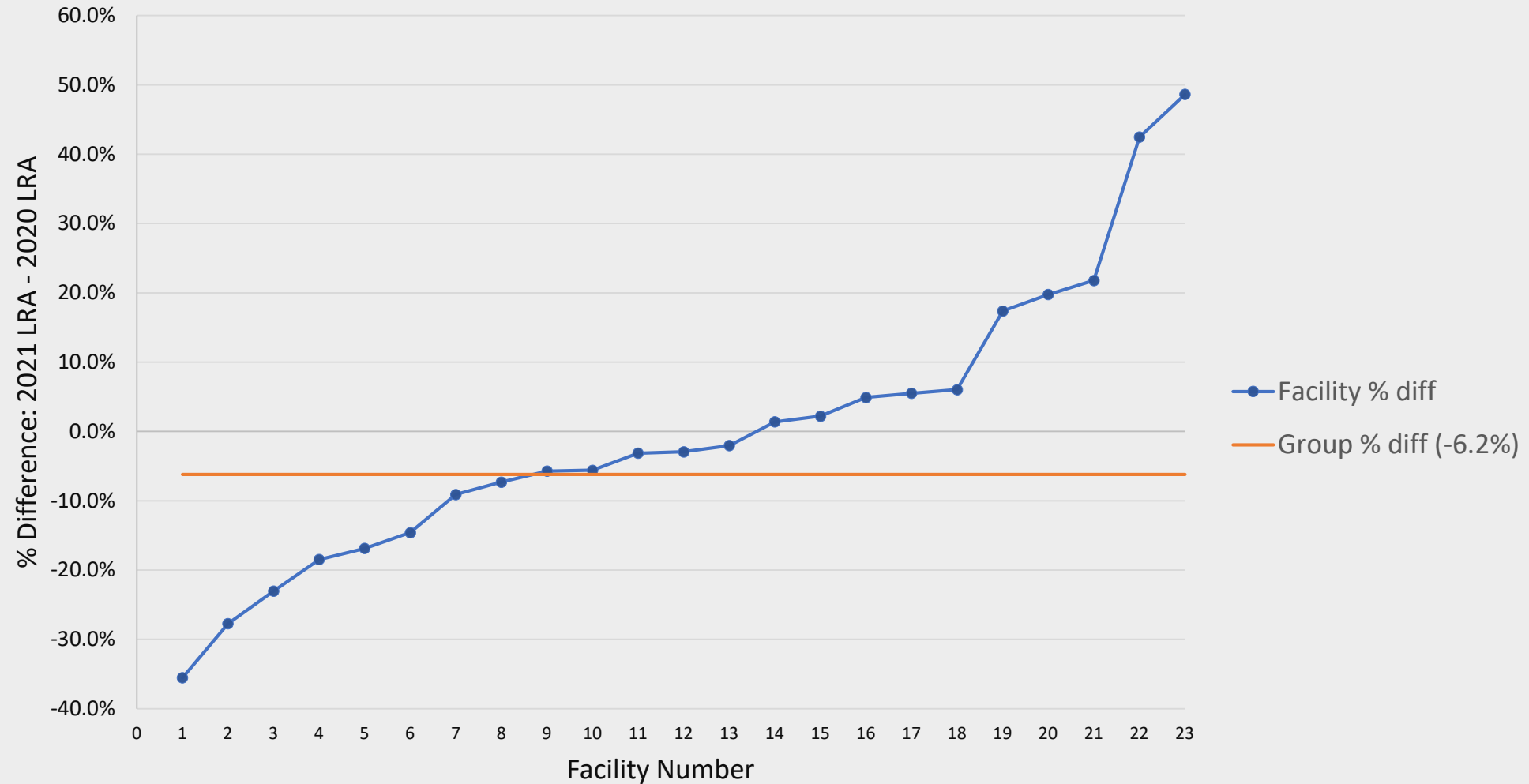
Q3 = April – June 2020

Q4 = July-September 2020

Surgical Hours – Group 5 (Primarily Eye/ENT)



Surgical Hours – Group 6 (All Others)

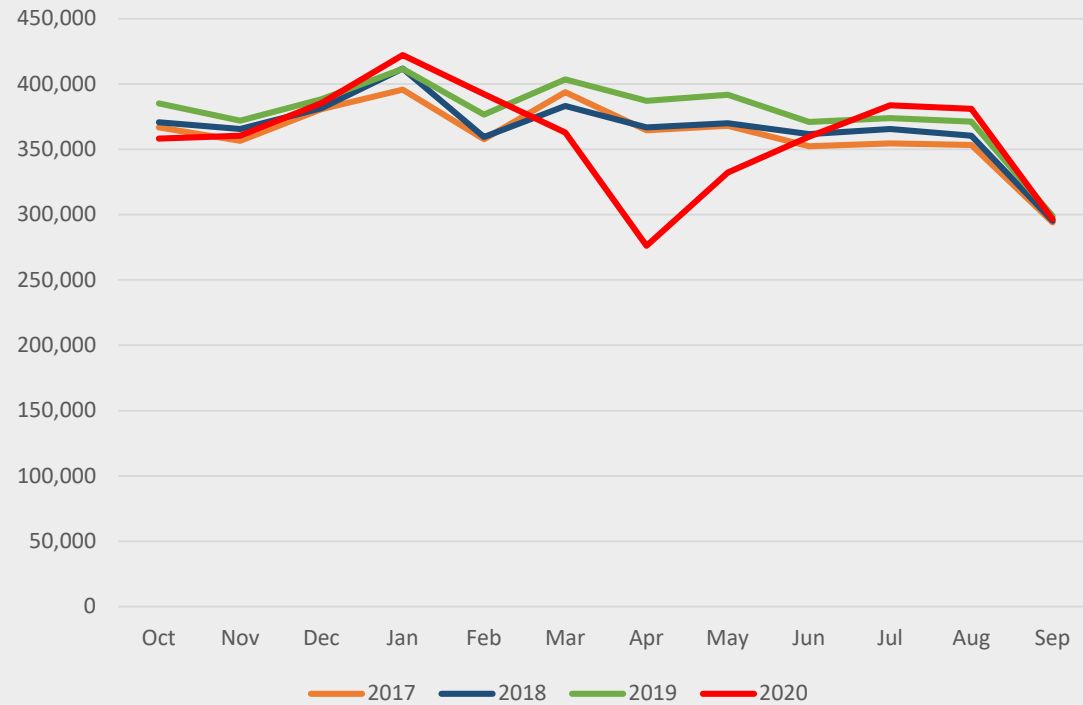


Acute Care Beds

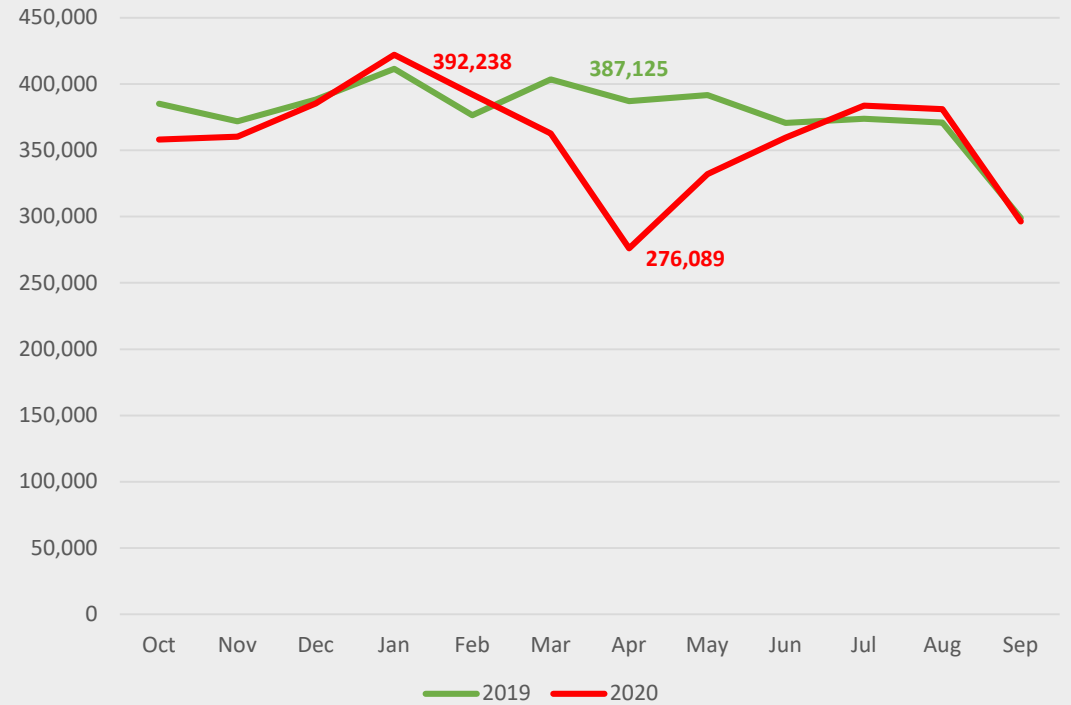
- Examined monthly reported days of care (DOC) utilization for FY 2017-2020 using data reported to HIDI and provided by Sheps Center
 - Unrefreshed preliminary data, subject to changes in the summer
- First plotted DOC to see trends in DOC
 - All hospitals
 - Average daily census (ADC) categories used in the SMFP
 - 1-99
 - 100-200
 - 201-400
 - > 400
 - Number of permanently licensed beds
 - Top 10 hospitals
 - Top 20 hospitals

Total Acute Care Bed Days of Care

All facilities – 4 years



All facilities – 2019 and 2020 only

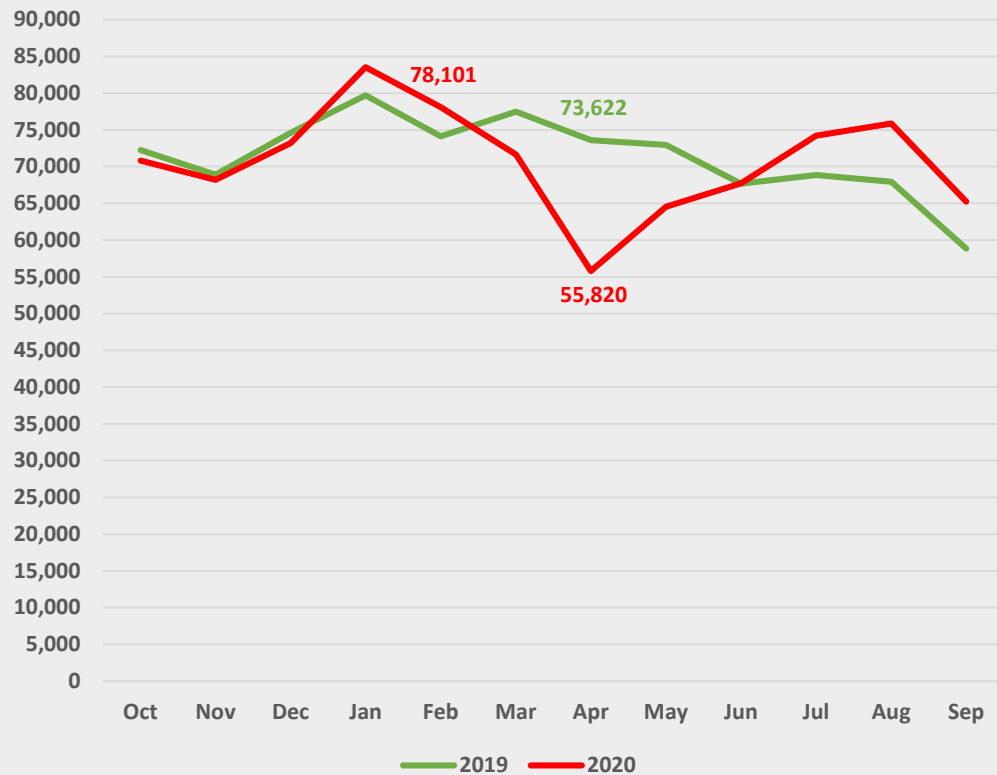


February to April 2020:
DOC decreased 30%

April 2019-April 2020: DOC
decreased 29%

2019 and 2020 Total Days of Care by Average Daily Census

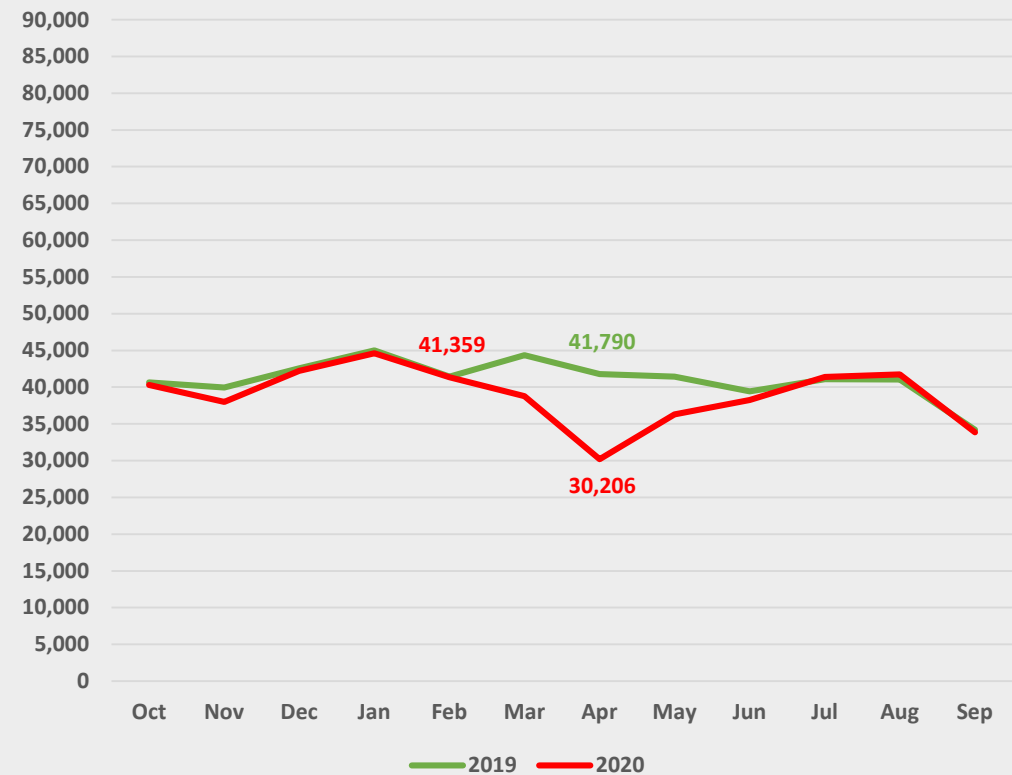
ADC 1 - 99 (73 Facilities)



February to April 2020:
DOC decreased 29%

April 2019-April 2020: DOC
decreased 24%

ADC 100 - 200 (11 Facilities)

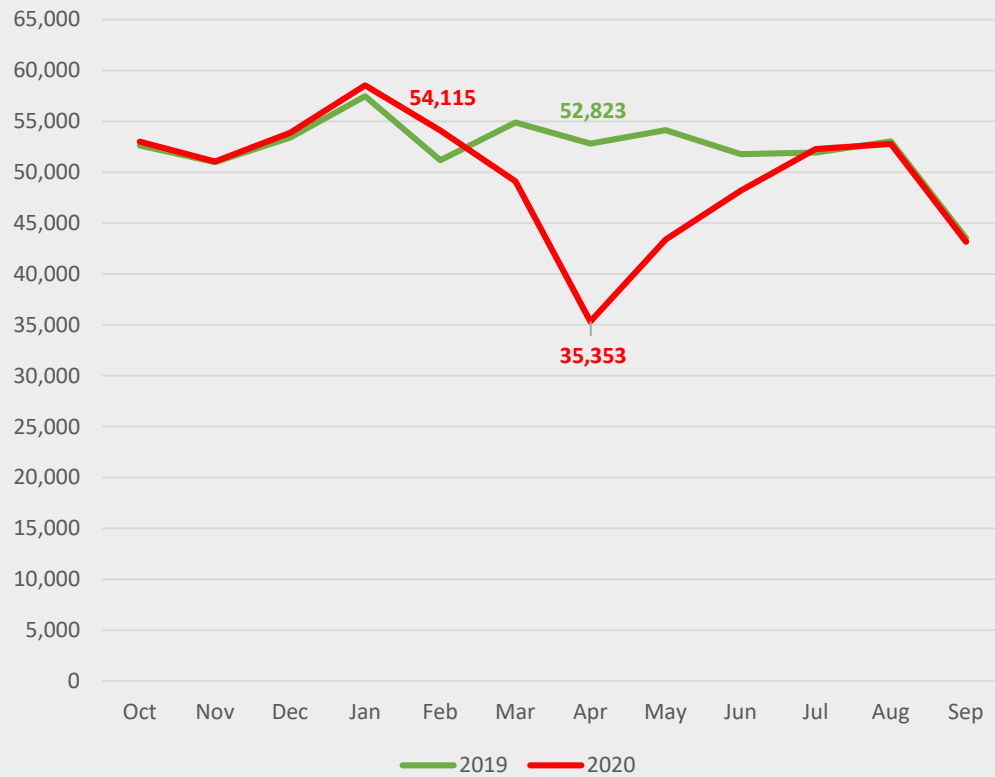


February to April 2020:
DOC decreased 27%

April 2019-April 2020: DOC
decreased 28%

2019 and 2020 Total Days of Care by Average Daily Census (continued)

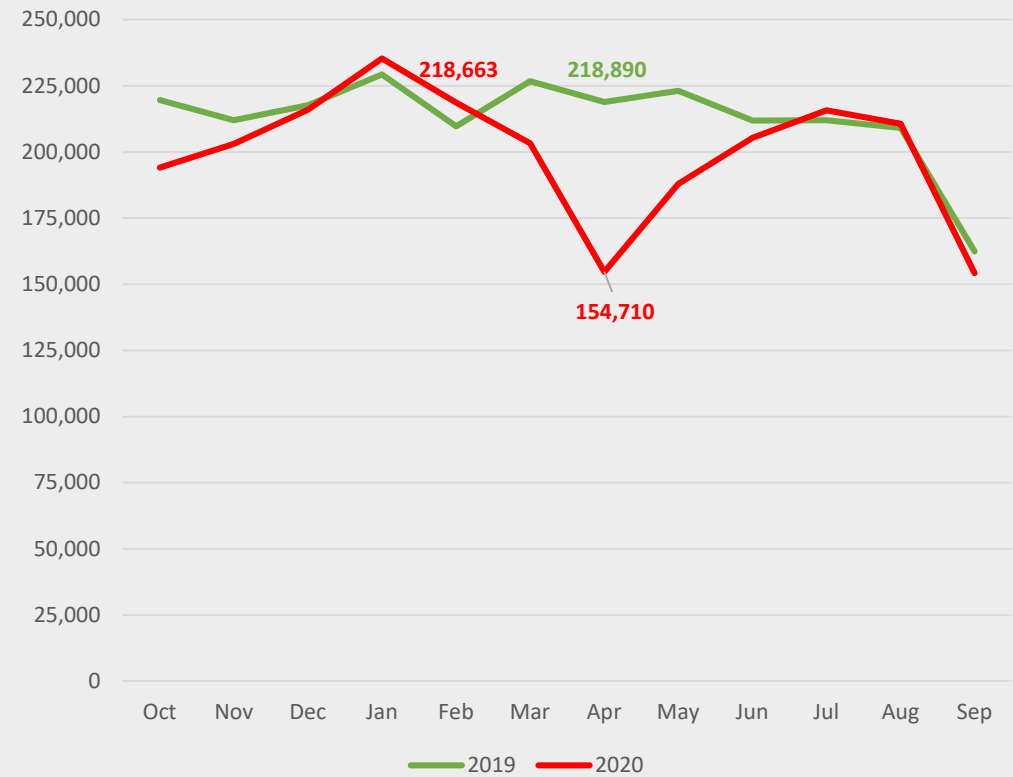
ADC 201 - 400 (7 Facilities)



February to April 2020:
DOC decreased 35%

April 2019-April 2020: DOC
decreased 33%

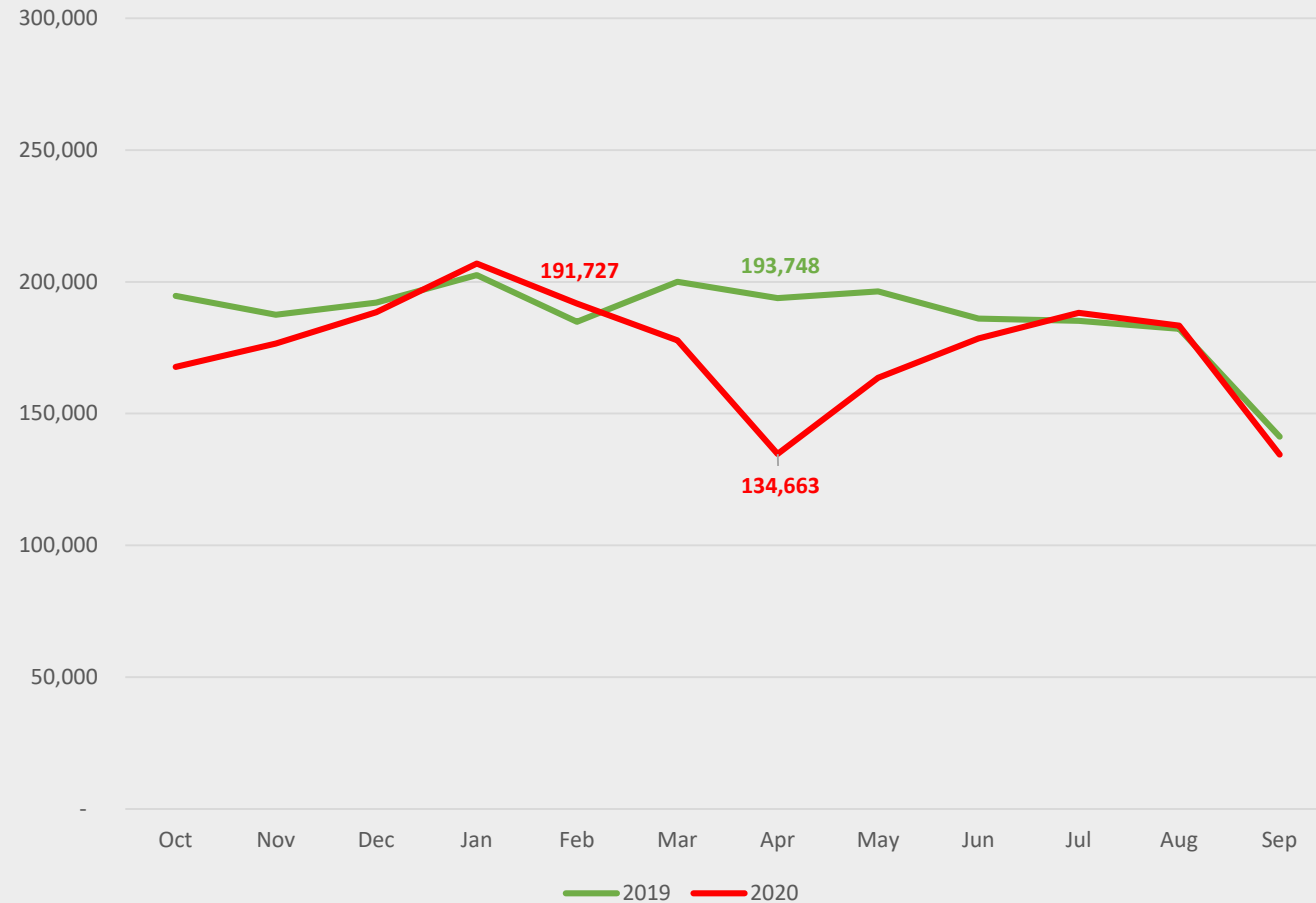
ADC > 400 (12 Facilities)



February to April 2020:
DOC decreased 29%

April 2019-April 2020: DOC
decreased 29%

Days of Care: Top 10 Facilities (Number of Licensed Beds)

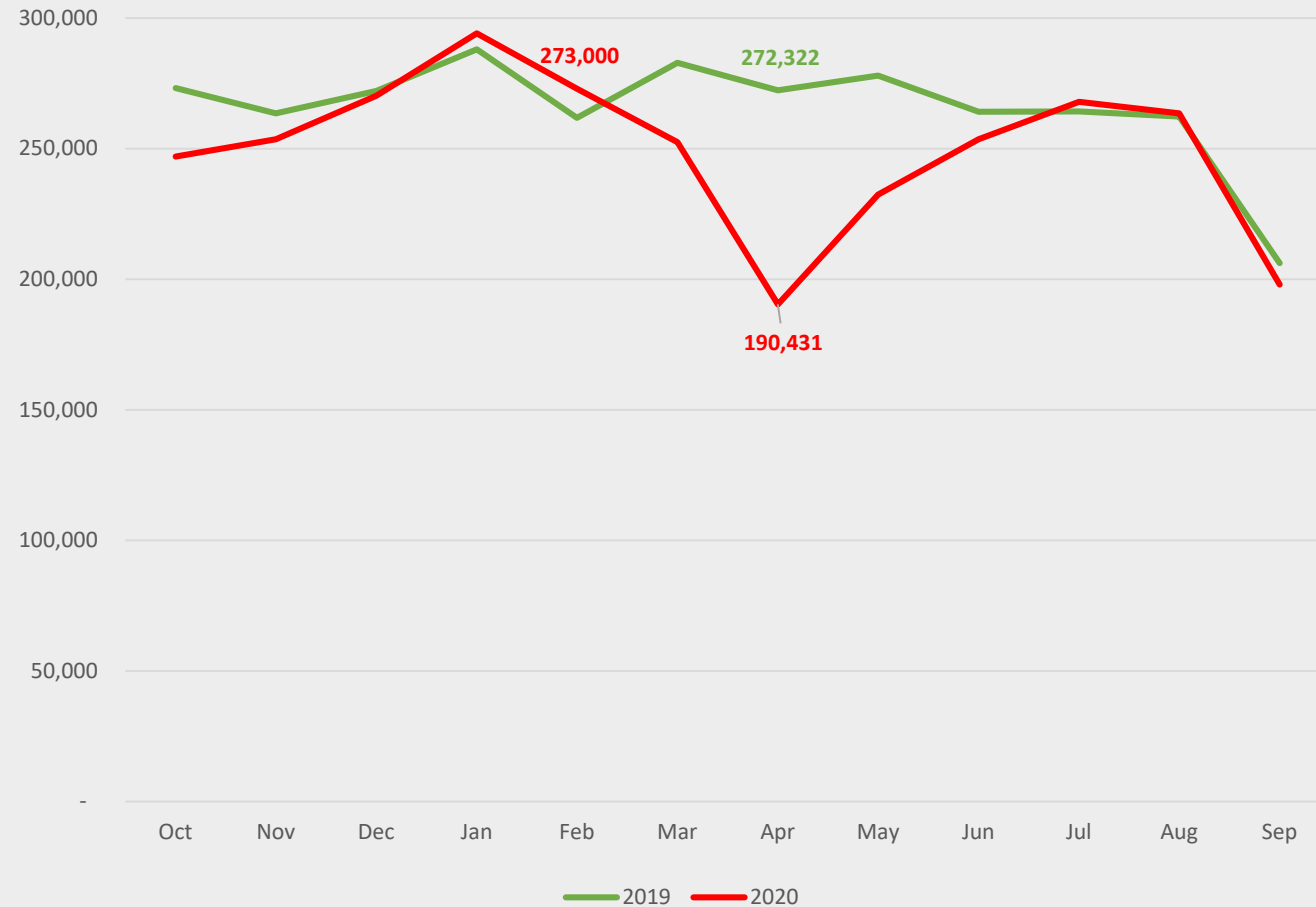


Hospital	Licensed Beds
Carolinas Medical Center	1,055
Duke University Hospital	960
Novant Forsyth Med Center	865
Vidant Medical Center	847
UNC Hospitals	817
NC Baptist Hospital	802
Cone Health	754
Mission Hospital	721
New Hanover Reg Hospital	647
WakeMed	628

February to April 2020:
DOC decreased 27%

April 2019-April 2020: DOC
decreased 30%

Days of Care: Top 20 Facilities (Number of Licensed Beds)



February to April 2020:
DOC decreased 30%

April 2019-April 2020: DOC
decreased 30%

Hospital	Licensed Beds
Previous list PLUS	
Cape Fear Valley Med Ctr	544
Novant Presbyterian	519
Atrium Health Cabarrus	447
Rex Hospital	439
CaroMont Reg Med Ctr	372
FirstHealth Moore	337
Duke Regional Hospital	316
CarolinaEast Med Center	307
High Point Reg Health	307
CHS Blue Ridge	293

Need Determinations 2017 – 2021 SMFPs

Service Area	2017	2018	2019	2020	2021
Cabarrus					22
Durham/Caswell	96		34		40
Forsyth				68	
Gaston			33	64	
Mecklenburg	60	50	76	126	123
Moore		22		25	
New Hanover				36	35
Orange	41				
Pitt/Greene/Hyde/ Tyrrell					63
TOTAL	197	72	143	319	283

What to do

- Unadjusted data yields no draft need determinations in 2022 SMFP
- Generally, hospitals returned to pre-COVID levels of utilization (days of care) by July.
- Need to adjust for the dip in utilization from March through June 2020
- Mindful that adjustments will be in the calculations for the next four years
 - DOC used to calculate the growth rate multiplier in the methodology
- Generated several test adjustments to need determination calculations (in multicounty service areas, listed only one county)
- Incorporated placeholders from previous need determinations for which CONs have not yet been issued

Test 1

- Substitute 2019 DOC separately for each month, March-June 2020
- Results in a zero growth rate from 2019 to 2020

Service Area	Need Determination
Anson	2
Buncombe/Graham/ Madison/Yancey	105
Cabarrus	34
Cumberland	26
Durham/Caswell	90
Mecklenburg	155
Orange	24
Pitt/Greene/Hyde/Tyrrell	88
Wake	72
TOTAL	596

Test 2

- For each facility, annualize DOC from first 6 months of FFY 2020
- Total 2020 DOC =
(total DOC October 2019 to March 2020) x 2

Example:

$$(1,157 + 1,014 + 1,021 + 1,277 + 1,332 + 1,023) \times 2$$
$$= 6,824 \times 2$$
$$= 13,648$$

Service Area	Need Determination
Anson	5
Buncombe/Graham/Madison/Yancey	123
Cabarrus	62
Cumberland	46
Davie	6
Durham/Caswell	200
Mecklenburg	339
Orange	64
Pitt/Greene/Hyde/Tyrrell	182
Wake	81
TOTAL	1,108

Test 3

- Overall data shows 2020 might have had relatively high utilization in absence of COVID
- Use average % change from FFY 2019 to the 8 “non-COVID months” in FFY 2020 as basis for calculating what DOC might have been for each month from March-June 2020

Formula for March 2020

Step 1: calculate % change

% change = [(Oct19DOC + Nov19DOC + Dec19DOC + Jan20DOC + Feb20DOC + Jul20DOC + Aug20DOC + Sep20DOC)

– (Oct18 DOC + Nov18DOC + Dec18DOC + Jan19DOC + Feb19DOC + Jul19DOC + Aug19DOC + Sep19DOC)]
/ (Oct18 DOC + Nov18DOC + Dec18DOC + Jan19DOC + Feb19DOC + Jul19DOC + Aug19DOC + Sep19DOC)

Step 2: Multiply March 2019 DOC by above result

Mar19DOC x (1 + % change)

Example calculation for March 2020

Step 1:

[(1,157 + 1,014 + 1,021 + 1,277 + 1,332 + 1,098 + 1,343 + 995)

– (1,033 + 962 + 1,079 + 1,302 + 1,152 + 1,048 + 1,068 + 994)]

/ (1,033 + 962 + 1,079 + 1,302 + 1,152 + 1,048 + 1,068 + 994)
= (9,237 – 8,638)/8,638 = **.06934**

Step 2:

1,229 x (1 + .06934) = **1,314.22**

Next: Repeat process for April, May, and June

Test 3 - Result

Service Area	Need Determination
Anson	2
Buncombe/Graham/ Madison/Yancey	182
Cabarrus	49
Davie	13
Durham/Caswell	125
Mecklenburg	254
Orange	23
Pitt/Greene/Hyde/Tyrrell	65
Wake	116
TOTAL	829

Test 4

- Use weighted average by facility
- Substitute weighted DOC for each month (March, April, May, June 2020) across 3 previous years and apply result to same month in 2020. The total of the weights = 1 (or 100%)

Formula for March 2020

Step 1: Calculate the average DOC weight for March 2017, March 2018, and March 2019.

$$w1 = \text{Mar17DOC} / (\text{Mar17DOC} + \text{Mar18DOC} + \text{Mar19DOC})$$

$$w2 = \text{Mar18DOC} / (\text{Mar17DOC} + \text{Mar18DOC} + \text{Mar19DOC})$$

$$w3 = \text{Mar19DOC} / (\text{Mar17DOC} + \text{Mar18DOC} + \text{Mar19DOC})$$

Step 2: Multiply each weight by the actual March DOC for each of the 3 years to calculate March 2020 DOC

$$(w1 \times \text{Mar17DOC}) + (w2 \times \text{Mar18DOC}) + (w3 \times \text{Mar19DOC})$$

Next: Repeat the process for April, May, and June

Calculation for March 2020

Step 1:

$$w1 = 1,288 / (1,288 + 1,119 + 1,229) = \mathbf{.35424}$$

$$w2 = 1,119 / (1,288 + 1,119 + 1,229) = \mathbf{.30776}$$

$$w3 = 1,229 / (1,288 + 1,119 + 1,229) = \mathbf{.33801}$$

Step 2:

$$(1,288 \times .35424) + (1,119 \times .30776) + (1,229 \times .33801) \\ = \mathbf{1,216.05}$$

Test 4 - Result

Service Area	Need Determination
Buncombe/Graham/ Madison/Yancey	73
Cumberland	21
Durham/Caswell	67
Mecklenburg	67
Pitt/Greene/Hyde/Tyrrell	43
Wake	43
TOTAL	314

Test 5

- For DOC in March-June 2020, substitute average DOC for 2017-2019, but weight 2019 higher

Formula for March 2020

Step 1: Calculate weighted DOC for each year

$$DOC1 = Mar17DOC \times .125$$

$$DOC2 = Mar18DOC \times .375$$

$$DOC3 = Mar19DOC \times .5$$

Step 2: Sum to calculate March 2020 DOC

$$Mar20DOC = DOC1 + DOC2 + DOC3$$

Next: Repeat process for April, May, and June

Example Calculation for March 2020

Step 1:

$$DOC1 = 1,288 \times .125 = 161$$

$$DOC2 = 1,119 \times .375 = 419.625$$

$$DOC3 = 1,229 \times .5 = 614.5$$

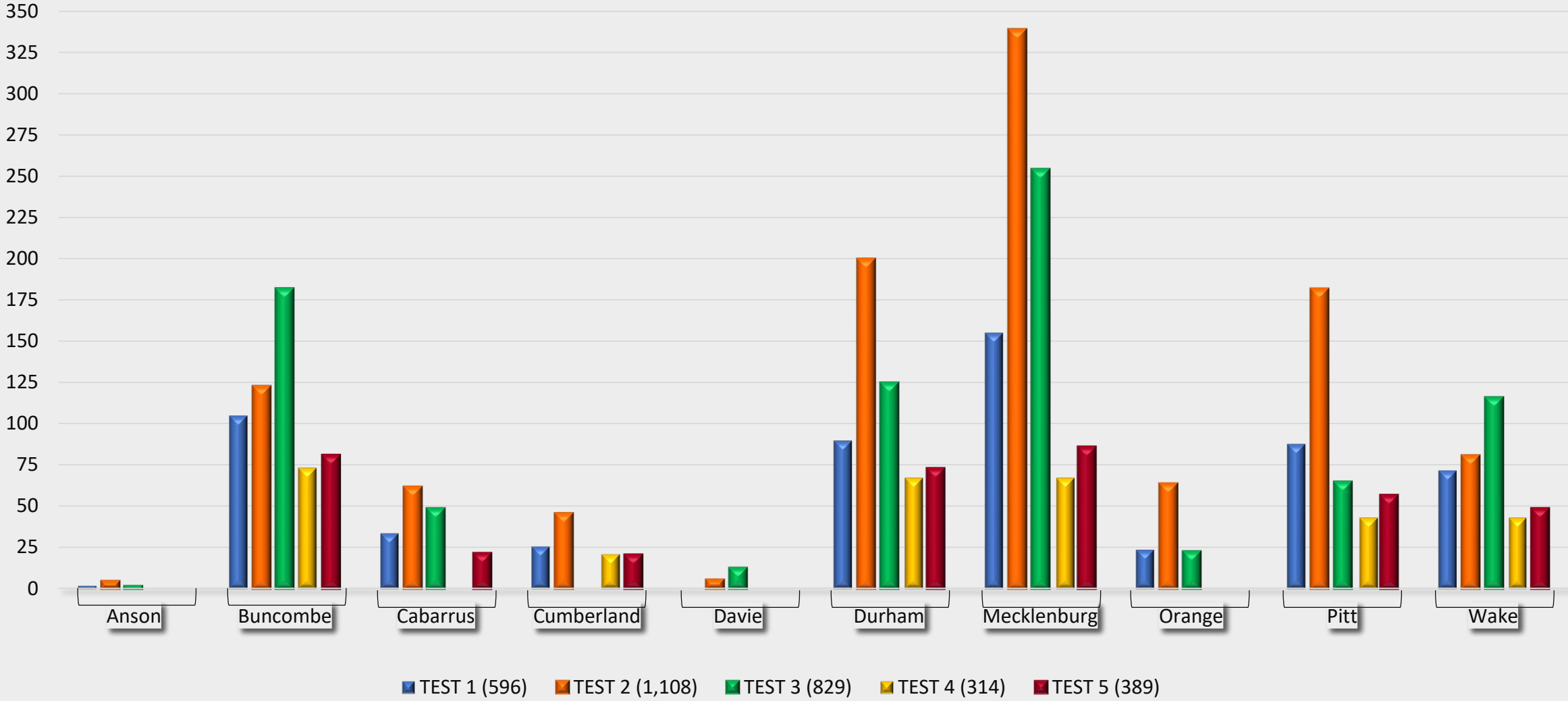
Step 2:

$$161 + 419.625 + 614.5 = \mathbf{1195.13}$$

Test 5 - Result

Service Area	Need Determination
Buncombe/Graham/ Madison/Yancey	81
Cabarrus	22
Cumberland	21
Durham/Caswell	73
Mecklenburg	86
Pitt/Greene/Hyde/Tyrrell	57
Wake	49
TOTAL	389

Results of all Bed Need Determination Tests



Summary of Test Need Determinations

Service Area	Test 1	Test 2	Test 3	Test 4	Test 5
Anson	2	5	2		
Buncombe/Graham/ Madison/ Yancey	105	123	182	73	81
Cabarrus	34	62	49		22
Cumberland	26	46		21	21
Davie		6	13		
Durham/Caswell	90	200	125	67	73
Mecklenburg	155	339	254	67	86
Orange	24	64	23		
Pitt/Greene/Hyde/ Tyrrell	88	182	65	43	57
Wake	72	81	116	43	49
TOTAL	596	1,108	829	314	389