PERFECT STORM PART II: IS A TSUNAMI BREWING?

Charles W. Whitten, M.D.
Professor and Chairman

Margaret Milam McDermott Distinguished Chair
in Anesthesiology and Pain Management
Department of Anesthesiology and Pain Management

UT Southwestern Medical Center
5323 Harry Hines Boulevard
Dallas, Texas 75390-9068
Office phone: 214-648-5413
Fax: 214-648-5461
charles.whitten@utsouthwestern.edu

Conflict of Interest & Why am I qualified to do this?

- I have no conflicts except:

(1) I have a long standing interest in the economics of academic anesthesia practice dating back to collaborations which began with Amr Abouleish and others in the late 1990's.

(2) We continue to perform collaborative research utilizing national databases.

2

Perfect Storm Overview: Part I

This has been presented from 2000-2011 and leaves a wonderful legacy for us in Academic Anesthesiology.

- **No data was presented in 2012 at the SAAA Meeting. I have included this for completeness in some of the slides.**

3

The Etiology of Perfect Storm Part I

Match Day 1994

4

Wall Street Journal March 17, 1995 – *G. Anders* "Once a hot specialty, Anesthesiology cools as insurers scale back"

- 1994 Grads-1,863 Residents graduate from Anesthesia Residencies
- 1995 Start – 892 Residents, consisting of 348 IMG's and 544 AMG's
- "This was the start of the lost generation." The specialty is now feeling this loss at another level, as individuals from this "lost generation" should be morphing into significant leadership positions.

5

Size of Residency Training Programs

- In 2016- 1,631 Senior Residents graduated (**35% women enrolled in all training programs**). A total of 6, 051 Anesthesiology Residents are enrolled in 135 Core Residency Programs.

Residency Production: Confounding Factors

- In 2015, we know that the following pursued ACGME fellowships:

Number of Programs (N)	Positions Filled	% Women
Critical Care Medicine (N=54)	175	31%
Pain Medicine (N=100)	337	22%
Pediatrics (N=56)	205	55%
Adult Cardiothoracic (N=62)	183	28%
OB (N=28)	38	68%
Clinical Informatics (N=1)	0	N/A

6

Understanding Clinical Productivity for Anesthesiology Departments

Utilize the Following:

- Not Simple
- Key Point: Organizational factors that determine a facility type impact clinical productivity.
- To best understand, compare to similar types of facilities:
  - ASC to ASC
  - Community Hospital to Community Hospital
  - AMC / Trauma to AMC / Trauma

7

Understanding Anesthesia Clinical Productivity and Survey Results

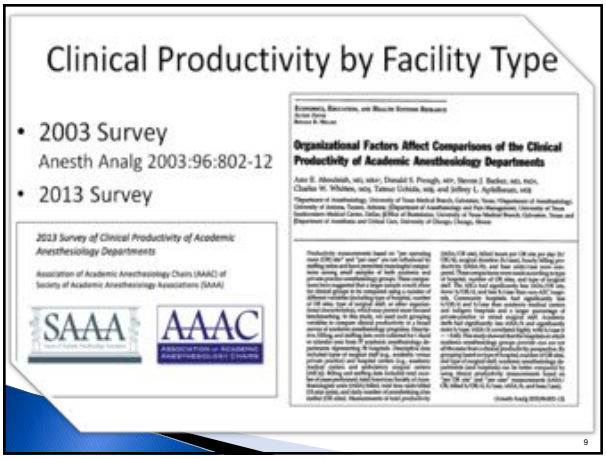
Utilize the Following:

- Figure from 2003 Paper
- Median Data by Facility Type, 2013 Survey

8

Clinical Productivity by Facility Type

- 2003 Survey
  Anesth Analg 2003:96:802-12
- 2013 Survey



9

Benchmarks by Facility Type SAAA 2013

MEDIAN VALUES (50%)	All Groups (n=143)	All non ASC (n=111)	ASC (n=32)	AMC/ Indigent* (n=80)	Children (n=11)	Community (n=20)
Sites						
tASA/OR	tASA = Total ASA units billed, OR = Anesthetizing Site					
H/OR/d	H = 4 time units, d = 250 weekdays/year					
tASA/h	Hourly productivity					
Base/case						
H/case						
Staffing Ratio						

* Includes 1 Heart Hospital
2013 Survey of Clinical Productivity of Academic Anesthesiology Departments, ww2.SAAAhq.org

10

Benchmarks by Facility Type SAAA 2013

MEDIAN VALUES (50%)	All Groups (n=143)	All non ASC (n=111)	ASC (n=32)	AMC/ Indigent* (n=80)	Children (n=11)	Community (n=20)
Sites	21.0	26.0	4.0	31.4	18.0	14.5
tASA/OR	What is Overall Clinical Productivity?					
H/OR/d						
tASA/h						
Base/case						
H/case						
Staffing Ratio						

* Includes 1 Heart Hospital
2013 Survey of Clinical Productivity of Academic Anesthesiology Departments, www.SAAAhq.org

11

Benchmarks by Facility Type- SAAA 2013

MEDIAN VALUES (50%)	All Groups (n=143)	All non ASC (n=111)	ASC (n=32)	AMC/ Indigent* (n=80)	Children (n=11)	Community (n=20)
Sites	21.0	26.0	4.0	31.4	18.0	14.5
tASA/OR	11,215	11,632	8,912	11,982	10,839	10,630
H/OR/d						
tASA/h						
Base/case						
H/case						
Staffing Ratio						

What determines tASA/OR?

* Includes 1 Heart Hospital
2013 Survey of Clinical Productivity of Academic Anesthesiology Departments, www.SAAAhq.org

12

Anesthesia Clinical Productivity

$/OR Site (Revenue Productivity)

tASA/OR Site (Clinical Productivity)

Ave Conversion Factor (Payer Mix)

tASA/h (Hourly Productivity)

H/OR/day (Billed Hours)

$$tASA/h = \frac{(base\ unit + time\ unit)}{(time\ unit/4)}$$

13

Benchmarks by Facility Type- SAAA 2013

MEDIAN VALUES (50%)	All Groups (n=143)	All non ASC (n=111)	ASC (n=32)	AMC/ Indigent* (n=80)	Children (n=11)	Community (n=20)
Sites	21.0	26.0	4.0	31.4	18.0	14.5
tASA/OR	11,215	11,632	8,912	11,982	10,839	10,630
H/OR/d						
tASA/h	6.7	6.7	7.4	6.5	7.3	7.1
Base/case	5.8	6.0	4.5	6.2	5.8	5.4
H/case	2.2	2.3	1.2	2.5	1.7	1.6
Staffing Ratio						

* Includes 1 Heart Hospital
2013 Survey of Clinical Productivity of Academic Anesthesiology Departments, www.SAAAhq.org

14

Benchmarks by Facility Type- SAAA 2013

MEDIAN VALUES (50%)	All Groups (n=143)	All non ASC (n=111)	ASC (n=32)	AMC/ Indigent* (n=80)	Children (n=11)	Community (n=20)
Sites	21.0	26.0	4.0	31.4	18.0	14.5
tASA/OR	11,215	11,632	8,912	11,982	10,839	10,630
H/OR/d	6.5	6.9	4.3	7.3	6.0	6.0
tASA/h	6.7	6.7	7.4	6.5	7.3	7.1
Base/case	5.8	6.0	4.5	6.2	5.8	5.4
H/case	2.2	2.3	1.2	2.5	1.7	1.6
Staffing Ratio						

* Includes 1 Heart Hospital
2013 Survey of Clinical Productivity of Academic Anesthesiology Departments, www.SAAAhq.org

15

Anesthesia Clinical Productivity

$/OR Site (Revenue Productivity)

tASA/OR Site (Clinical Productivity)

Ave Conversion Factor (Payer Mix)

tASA/h (Hourly Productivity)

H/OR/day (Billed Hours)

h/case (Case Duration)

base/case

Anesth Analg 2003:96:802-12

16

Anesthesia Clinical Productivity

$/OR Site (Revenue Productivity)

tASA/OR Site (Clinical Productivity)

Ave Conversion Factor (Payer Mix)

tASA/h (Hourly Productivity)

H/OR/day (Billed Hours)

h/case (Case Duration)

base/case

OR Utilization

Workload

Case Scheduling, Delays, Cancellations

Block Allocation (# of OR Sites)

h/case (Case Duration)

# of Cases

Anesth Analg 2003:96:802-12

17

Benchmarks by Facility Type- SAAA 2013

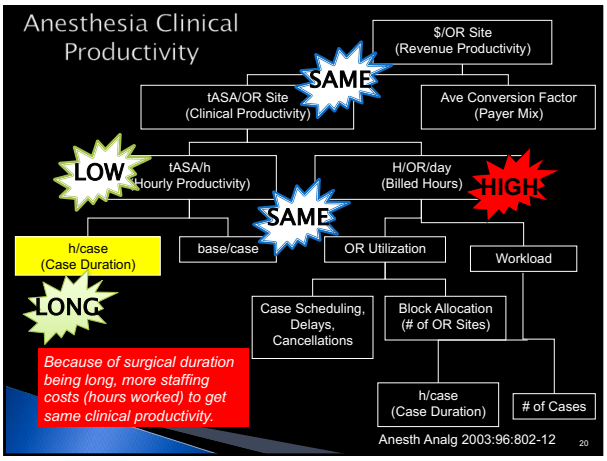
MEDIAN VALUES (50%)	All Groups (n=143)	All non ASC (n=111)	ASC (n=32)	AMC/ Indigent* (n=80)	Children (n=11)	Community (n=20)
Sites	21.0	26.0	4.0	31.4	18.0	14.5
tASA/OR	11,215	11,632	8,912	11,982	10,839	10,630
H/OR/d	6.5	6.9	4.3	7.3	6.0	6.0
tASA/h	6.7	6.7	7.4	6.5	7.3	7.1
Base/case	5.8	6.0	4.5	6.2	5.8	5.4
H/case	2.2	2.3	1.2	2.5	1.7	1.6
Staffing Ratio						

* Includes 1 Heart Hospital
2013 Survey of Clinical Productivity of Academic Anesthesiology Departments, www.SAAAhq.org

18

How to use the Benchmark Data?

- Compare similar facilities
- Use to identify where to investigate more
- Use to confirm your understanding
- Example: Similar overall productivity (tASA/OR), but long surgical cases (High H/case)
- Example: Low tASA/OR but similar tASA/h



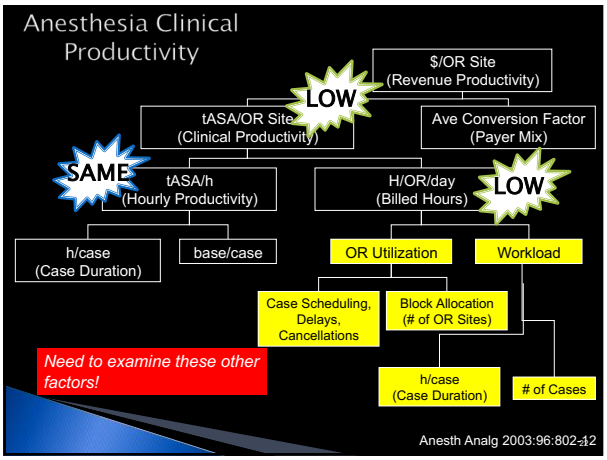
Benchmarks by Facility Type, SAAA 2013

MEDIAN VALUES (50%)	All Groups (n=143)	All non ASC (n=111)	Facility Type ASC (n=32)	AMC/ Indigent* (n=80)	Children (n=11)	Community (n=20)
Sites	21.0	26.0	4.0	31.4	18.0	14.5
tASA/OR	11,215	11,632	8,912	11,982	10,839	10,630
H/OR/d	6.5	6.9	4.3	7.3	6.0	6.0
tASA/h	6.7	6.7	7.4	6.5	7.3	7.1
Base/case	5.8	6.0	4.5	6.2	5.8	5.4
H/case	2.2	2.3	1.2	2.5	1.7	1.6
Staffing Ratio						

2013 Survey of Clinical Productivity of Academic Anesthesiology Departments, www.SAAAhq.org

*Includes 1 Heart Hospital

21



Other Findings

- Breakdown by number of sites, type of surgical staff (academic or mixed private/academic)
- Staffing ratio

Benchmarks by Facility Type, SAAA 2013

MEDIAN VALUES (50%)	All Groups (n=143)	All non ASC (n=111)	ASC (n=32)	AMC/ Indigent * (n=80)	Children (n=11)	Community (n=20)
Sites	21.0	26.0	4.0	31.4	18.0	14.5
tASA/OR	11,215	11,632	8,912	11,982	10,839	10,630
H/OR/d	6.5	6.9	4.3	7.3	6.0	6.0
tASA/h	6.7	6.7	7.4	6.5	7.3	7.1
Base/case	5.8	6.0	4.5	6.2	5.8	5.4
H/case	2.2	2.3	1.2	2.5	1.7	1.6
Staffing Ratio	1.8	1.7	2.8	1.8	1.7	1.8

*Includes 1 Heart Hospital

2013 Survey of Clinical Productivity of Academic Anesthesiology Departments, www.SAAAhq.org

24

Benchmarks 2013

MEDIAN VALUES (50%)	All Groups (n=143)	All non ASC (n=111)	ASC (n=32)	AMC/ Indigent* (n=80)	Children (n=11)	Community (n=20)	Academic Only (n=57)	Mixed/ Private Practice ** (n=54)
Sites	21.0	26.0	4.0	31.4	18.0	14.5	29.0	25.0
FTE	12.0	15.0	2.0	17.0	13.0	6.0	16.0	13.0
Staffing Ratio	1.8	1.7	2.8	1.8	1.7	1.8	1.8	1.7
tASA/case	14.3	15.6	9.1	16.6	12.5	12.3	16.6	14.1
Base/case	5.8	6.0	4.5	6.2	5.8	5.4	6.2	5.8
H/case	2.2	2.3	1.2	2.5	1.7	1.6	2.5	2.1
tASA/h	6.7	6.7	7.4	6.5	7.3	7.1	6.5	6.8
Case/OR/d	3.1	3.0	3.6	3.0	3.5	3.2	2.9	3.3
tASA/OR/d	11,215	11,632	8,912	11,982	10,839	10.630	12,023	11,445
H/OR/d	6.5	6.9	4.3	7.3	6.0	6.0	7.2	6.8

*Includes 1 Heart Hospital, **Private practice only

25

2013 AAAC/SAAA Clinical Productivity Report

Key Findings:

1) Similar to previous reports, ambulatory surgical centers (ASC) have different clinical productivity measurements than full-service facilities. This finding is consistent with the fact that ASC are smaller, do less complex cases, do shorter procedures, and do not function 24/7.
2) Smaller facilities (1-9 sites, 10-19 sites) were associated with shorter cases that leads to higher tASA/h productivity. The number of billed hours worked per day (H/OR/d) was less that may be consistent with less after-hour cases and weekend cases.
3) Compared to AMC's, Children's Hospitals (not reported in 2003 report) showed lower case duration cases that leads to higher tASA/h numbers. But the overall tASA/OR was not much less despite lower H/OR/d due to this higher hour billing productivity.

26

My observation in running a large Department, AND SPEAKING TO OTHER CHAIRS, is that there is a shifting emphasis to concurrency rates, by hospital administration.

27

SAAA YEARLY SURVEY DATA 2016

28

2016 Average Department

	Mean	+/- SD	Median
Surgical Anesthesiologist FTE's	43	29.5	39.5
Acute Pain	1.9	1.77	1.2
Chronic Pain	3.0	2.09	2.2
ICU	3.0	3.45	2.0
Residents			
CA-1	14.7	6.8	11
CA-2	14.6	6.8	14
CA-3	14.6	6.8	14
CA-4	11	10.6 (Max 42)	14

Per ACGME Average sized Program – CAs 1,2 & 3 = 41.8

Internship CA-0	10.3	7.3	10
Interns in home Dept.	11.8	6.6	11

29

National Clinical Coverage

	Mean	+/- SD	Median
How many OR's does your Department cover each day?			
Sunday	3.7	3.3	3
Monday	43.4	23.3	40
Tuesday	43.5	23.5	40
Wednesday	43.3	23.1	40
Thursday	43.4	23.1	40
Friday	42.8	22.5	40
Saturday	4.6	4	4

30

National Clinical Coverage, *con't.*

	Mean	+/- SD	Median
How many Non-OR/Off Site locations does your Department cover each day?			
Sunday	0.8	1.7	0
Monday	12.1	9.09	9
Tuesday	12.1	8.9	9
Wednesday	12.2	8.9	9
Thursday	12.1	8.8	9
Friday	12.1	8.7	9
Saturday	1.0	1.8	0
How many OB deliveries with anesthesia involvement does your Department have each year?	3,173	2,411 (maximum 11,500)	2,548

31

Total Work FTE

	Mean	+/- SD	Median
If your institution funds retirement/pension, what is the average percentage of total compensation provided?	9.1%	4.62%	8%
What is the total number of part-time clinical physicians faculty that your Department employs?	11.2	11.45	7
What is the average percentage of faculty fringe benefits, excluding malpractice premium and pension as compared with the base?	19.1%	10%	18%
What is the total number of clinical faculty members who have 40% or greater academic time for scholarly work ?	4.5	6.6 (Max 37)	2

32

Clinical Coverage

	Mean	+/- SD	Median
How many faculty do you have on each of these services per day on average, Monday thru Friday in the daytime.			
OB	1.5	1.03	1
ICU	2.1	1.9	2
Acute Pain	1.5	1.17	1
Pain Clinic	2.5	1.76	2
Pre-Op Clinic	1.0	0.59	1
Other	0.3	1.06	0
Total	8.9		

33

CRNAs/AAs

	Mean	+/- SD	Median
Paid for by Dept.	40.3%	42.7%	23%
Paid for by your Hospital	57.3%	43.2%	74%
By other sources	2.4%	12.7%	0%

*Previous years have reported these as total #'s. Total # of CRNAs, AAs employed is not available.

34

Average Department Clinical Coverage Monday-Friday

	Mean	+/- SD	Median
ORs	43.4	23	40
Off Site	12.1	8.9	9
OB	1.5	1.03	1
ICU	2.1	1.9	2
APS	1.5	1.17	1
Pain	2.5	1.76	2
Pre-Op	1.0	0.59	1
Other	0.3	1.06	0
Total	64.4		
Faculty/Sites	**50.9/64.4= 0.7953 (In 2015 0.9555)**		

35

Average National Department Clinical Revenue

	Mean	+/- SD
Average Department Clinical Revenue	$ 36,497,149	$ 29,947,595
Clinical Revenue per FTE	$ 545,357	$ 346,678
Research Revenue	$ 1,876.973	$ 3,467,917 (Max $22,670,991)
Research Revenue per FTE	$ 22,281	$ 35,072
Total Institutional Support	$ 11,223,736	$ 9,158,329
Total Institutional Support per FTE	$ 190,584	$ 117,589

36

Average National Department Clinical Revenue *Con't.*

	Mean	+/- SD
Support from the Hospital	$ 8,418,023	$ 6,869,062
Support from Medical School	$ 1,372,671	$ 3,806,483
Support from other sources	$ 1,433,042	$ 4,248,390
Other income	$ 392,801	$ 784,247
Total Department Revenue	$ 49,990,658	$ 33,413,649
Total Department Revenue per FTE	$ 763,516	$ 321,704

37

Comparison of Economic Status by Departmental Size

<40 (n=21) +88 (n=21)

38

<40 n= 21	Mean	+/- SD	Median
Total Support per FTE	$ 245,952	$ 117,203	$ 245,897
Total Revenue per FTE	$ 688,333	$ 182,788	$ 650,043
Support w/o CRNA support per FTE	$ 193,222	$ 120,714	$ 153,846
Expenses per FTE	$ 658,941	$ 184,528	$ 622,959
Margin per FTE those w/ Profit (n=11)	$ 80,899	$ 115,474	$ 39,949
+88 n= 21	**Mean**	**+/- SD**	**Median**
Total Support per FTE	$ 139,332	$ 92,719	$ 119,575
Total Revenue per FTE	$ 818,530	$ 146,040	$ 819,250
Support w/o CRNA support per FTE	$ 120,348	$ 80,494	$ 99,011
Expenses per FTE	$ 771,885	$ 121,526	$ 775,081
Margin per FTE those w/ Profit (n=20)	$ 49,801	$ 64,130	$ 32,496

39

Billing Production National

	Mean	+/- SD
Total Anesthesia Units Billed	722,172	359,585
Total Anesthesia Units Billed Per FTE	12,055	3,361
Time Units per Case	11.7	4.04
Cases Billed	46,451	23,501
Total Work RVUs for Intraoperative Procedures (Line Placement/TEE)	32,918	59,666
How many work RVUs did you bill for your ICU Service last year? (n=55)	14,476	16,189

40

Pain Billing Production National

	Mean	+/- SD
How many work RVUs did you bill for Pain Management last year?		
In-Patient-Acute Pain	4,882	8,784
Regional Blocks-Post-Op	4,423	7,919
In-Patient-Chronic Pain	1,344	3,395
Regional Blocks-Post-Op	4,418	10,912
Out-Patient-Chronic Pain	14,840	13,238

41

Billing Data

	Mean	+/- SD
What is your gross unit value?	$121.00	$ 37.60
What is your average $ amount collected per unit?	$ 37.60	$ 14.10
What unit value do you receive from Medicaid?	$ 16.40	$ 5.84

42

ICU Data

	Mean	+/- SD	Median
On average how many patients does each type of resident cover while on service?			
CBY-1	3.2	3.57	2
CA-1	4.7	4.04	4
CA-2	6.2	4.37	6
CA-3	4.8	4.58	4

43

ICU Data

	Mean	+/- SD	Median
On average how many patients does each fellow cover while on service?	8.3	8.03	9
How many ICU weeks are required for a faculty member to be considered as 100% clinical with no OR commitment?	23.1	9.2	25
How many ICU weeks are required for faculty member to fulfill their departmental on call requirement?	13.1	6.31	12
Following a seven day ICU assignment, how many post-call days off are provided to your intensivist?	2.3	2.14	1
How many distinct ICU does your department cover?	2.6	1.65	3

44

Billing – Median Data

	Median
Total Anesthesia Units	633,568
Total Anesthesia Units Billed per FTE	11,706
Total Anesthesia Time Units Billed Per Case	10.5
What is the Average Unit Dollar Amount Collected?	$35.00

45

Margin Analysis

	Mean	+/- SD
Margin (n=83)	$ 3,384,167	$13,620,323
Margin: Those with profit(n=56)	$5,843,203	$15,951,290
Margin: Those with loss (n=17)	-$2,725,503	$2,849,928

46

Compensation

How much additional compensation do you pay for the following subspecialty excluding 0?	Mean	+/- SD	Median
For Departments paying additional comp. (50%)			
Cardiac	$ 18,104	$ 13,943	$ 15,000
ICU	$ 17,699	$ 15,178	$ 11,728
Pediatrics	$ 19,075	$ 23,421	$ 10,000
Pain	$ 17,676	$ 26,174	$ 10,000
OB	$ 10,775	$ 5,859	$ 10,000
Neurology	$ 10,000	$ 2,887	$ 10,000
Call – How much do you pay per hour for late/weekend In-House Coverage	$163.00	$43.80	$ 150.00

47

SAAA 2016 Compensation
Total Compensation Including Income Plus Pension Contributions

Compensation Includes Income Plus Pension Contribution	25%	Median	75%
Instructor	257,398	295,202	319,267
Assistant Professor	318,247	350,131	367,485
Associate Professor	340,200	377,715	406,157
Professor	366,072	401,282	442,446
Chair	528,042	577,751	652,705

48

Faculty Benefits

	Mean	+/- SD	Median
Number of vacation days	25.1	5.33	24
Number of meeting days	7.3	3.47	7

49

Total National Department Support 2016 (Without CRNA Support)

	Mean	+/- SD	Median
Support without CRNA Support	$ 8,754,049	$ 7,558,722	$ 781,910
Support without CRNA Support per FTE	$ 149,229	$ 106,373	$ 127,957

50

Mean Total National Department Support (Without CRNA Support)

	$ Support	$ Per FTE (Mean)
2009	$ 5,630,386	$ 133,196
2010	$ 6,579,848	$ 128,619
2011	$ 7,008,978	$ 140,435
2012	$ 6,920,575	$ 132,339
2013	$ 7,413,000	$ 144,000
2014	$ 7,851,927	$143,964
2015	$ 7,727,345	$150,182
2016	$ 8,754,049	$149,229

51

Mean National Institutional Support

Total Support/FTE	2016	$ 190,584
	2015	$ 191,912
	2014	$ 196,441
	2013	$ 181,000
(Total support – CRNA Support)/FTE	2016	$ 149,229
	2015	$ 150,182
	2014	$ 143,964
	2013	$ 144,000
	2012	$ 132,338
	2011	$ 140,435

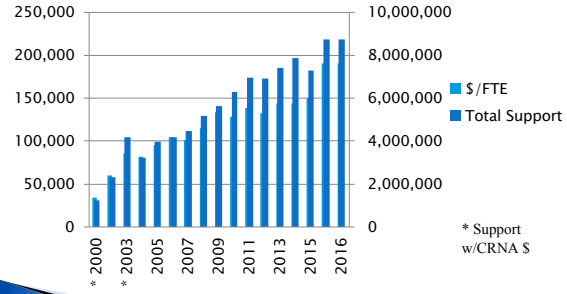
52

Mean National Institutional Support

(Support without CRNA support)/Site	2016	$ 8,754,049 ÷ 64.4= $ 135,932
	2015	$ 128,789
	2014	$ 131,744
	2013	$ 137,277
	2012	$ 128,831

53

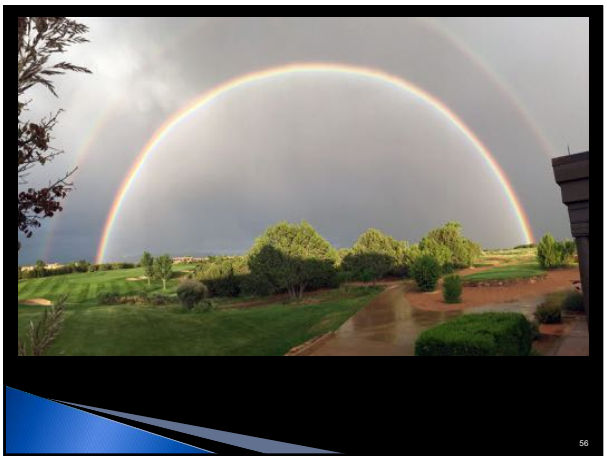
Total National Department Support (Without CRNA Support)



54

NEW SURVEY SIMPLICITY!!!

55



56