# NAEC Annual Meeting

December 4, 2017

National Association of Epilepsy Centers

# Agenda

1. Welcome
2. NAEC Center Data Update
3. President's Update
4. Publication on Criteria for EMU Admissions
5. DRG Analysis
6. CPT/RUC Update on 95951

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# Welcome

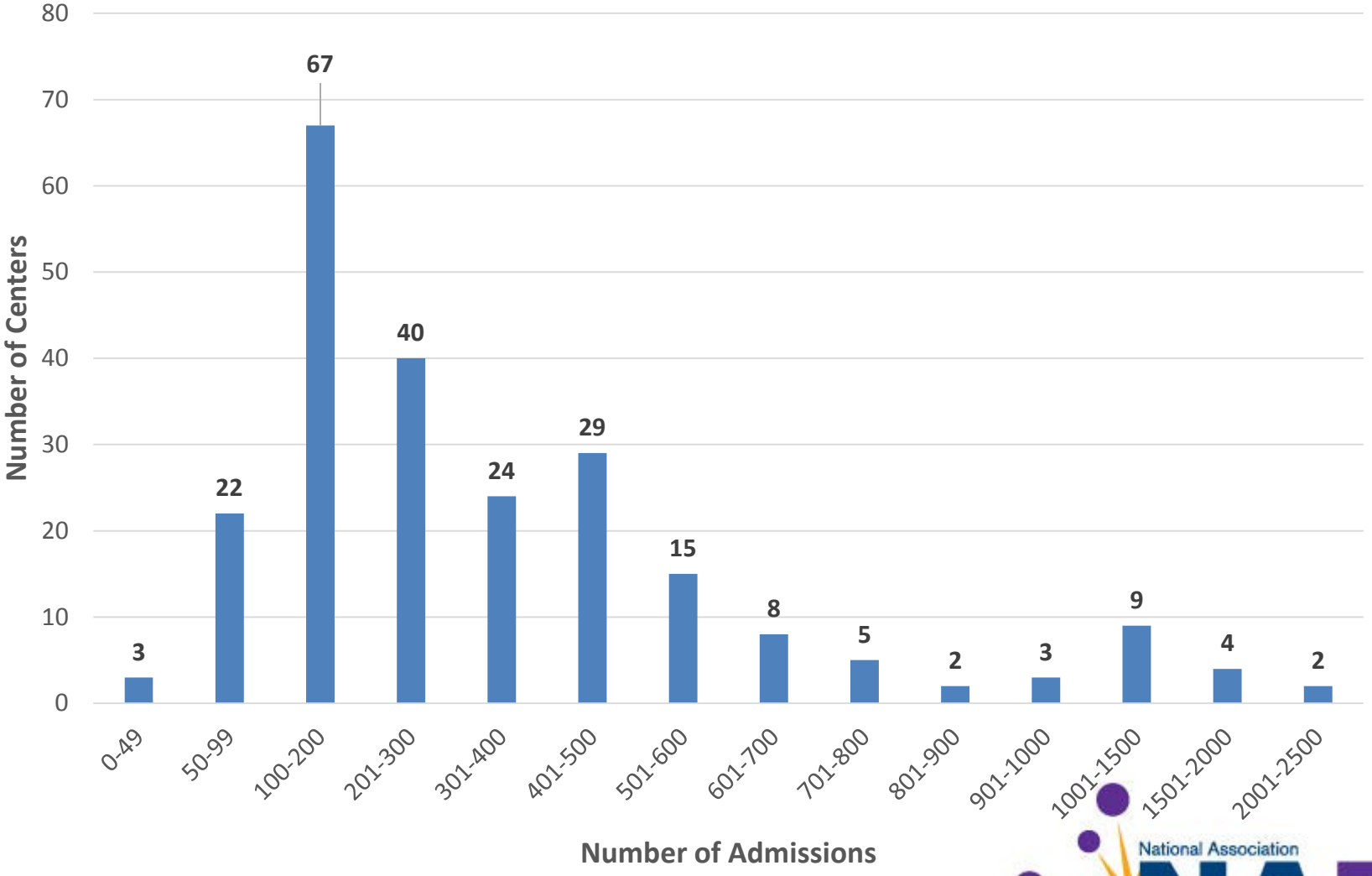
Nathan Fountain, MD
NAEC President

# NAEC Data Update

Susan Herman, MD

NAEC Vice President

# EMU Admissions - 2016

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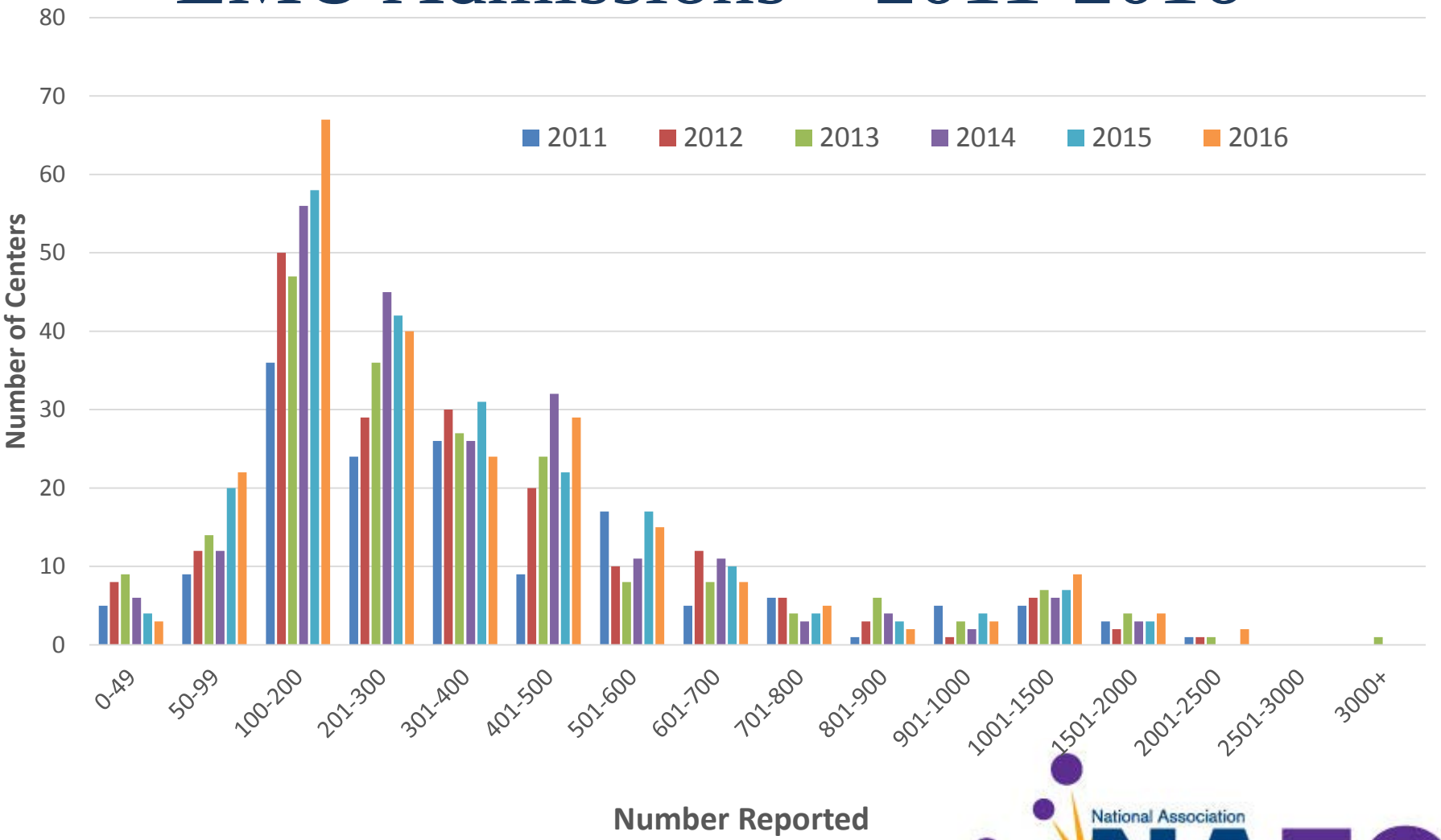
# EMU Admissions – 2011-2016

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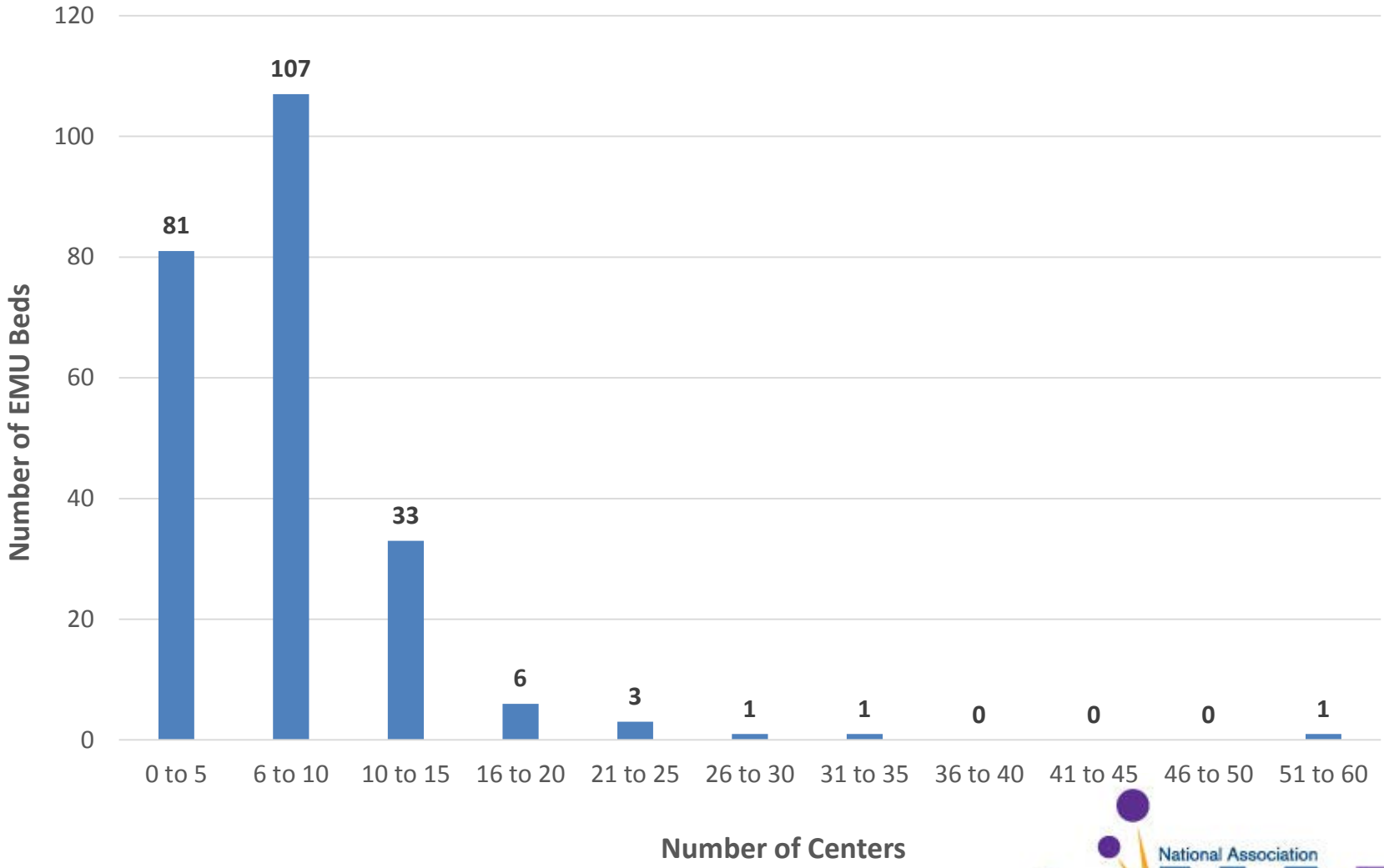
# Number of EMU Beds - 2016

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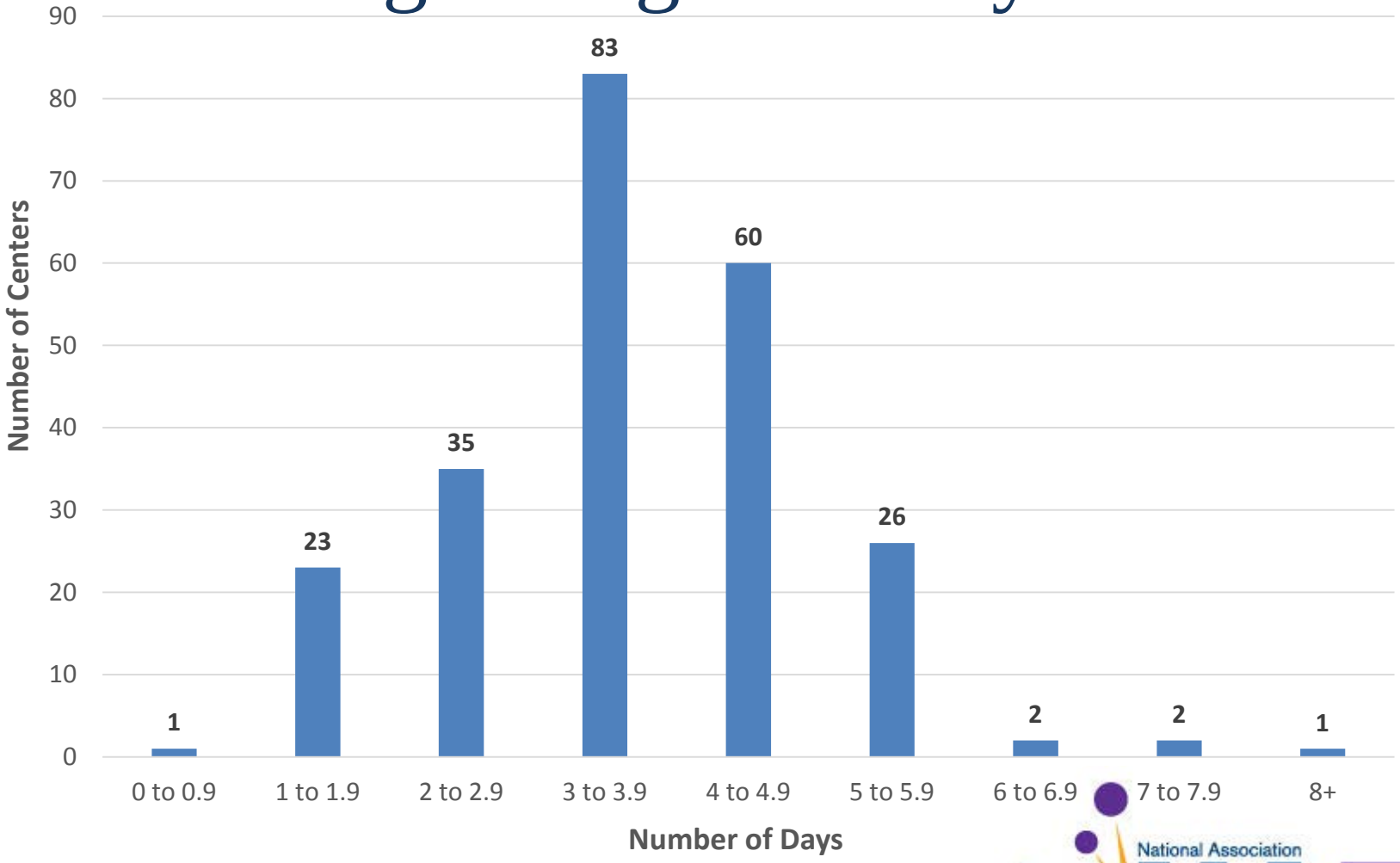
# Average Length of Stay - 2016

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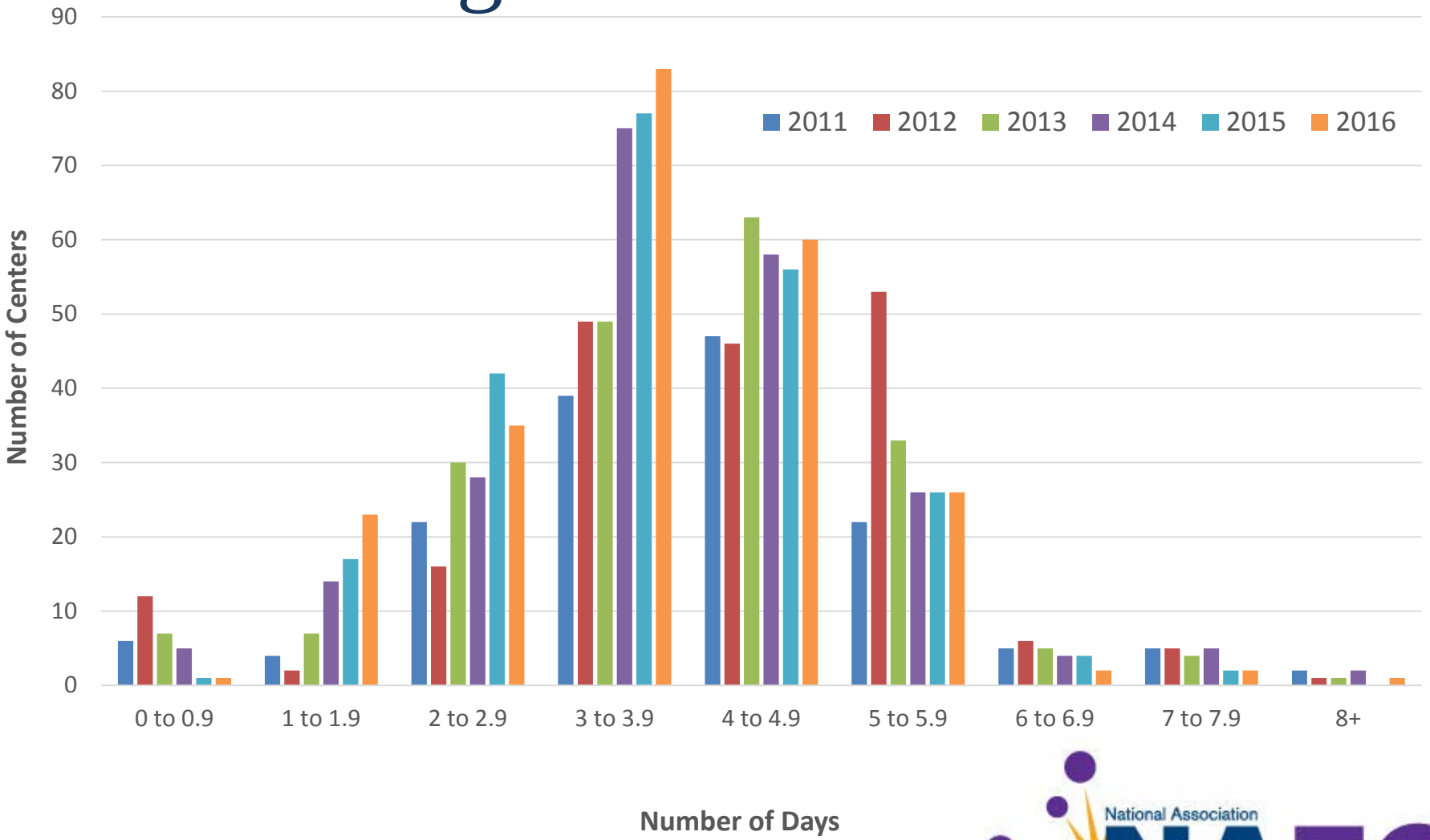
# Average LOS – 2011-2016

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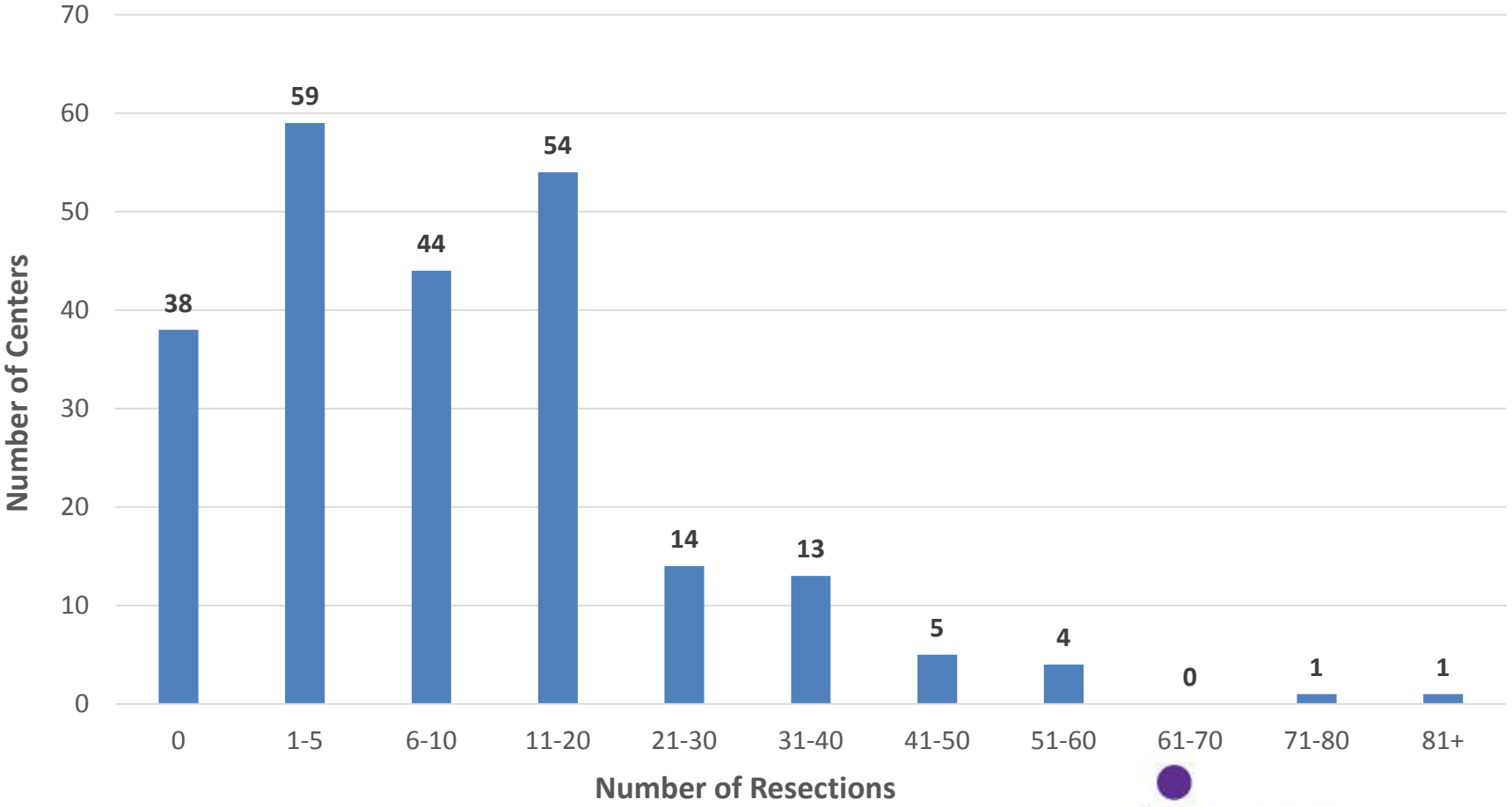
# Total Resections -2016

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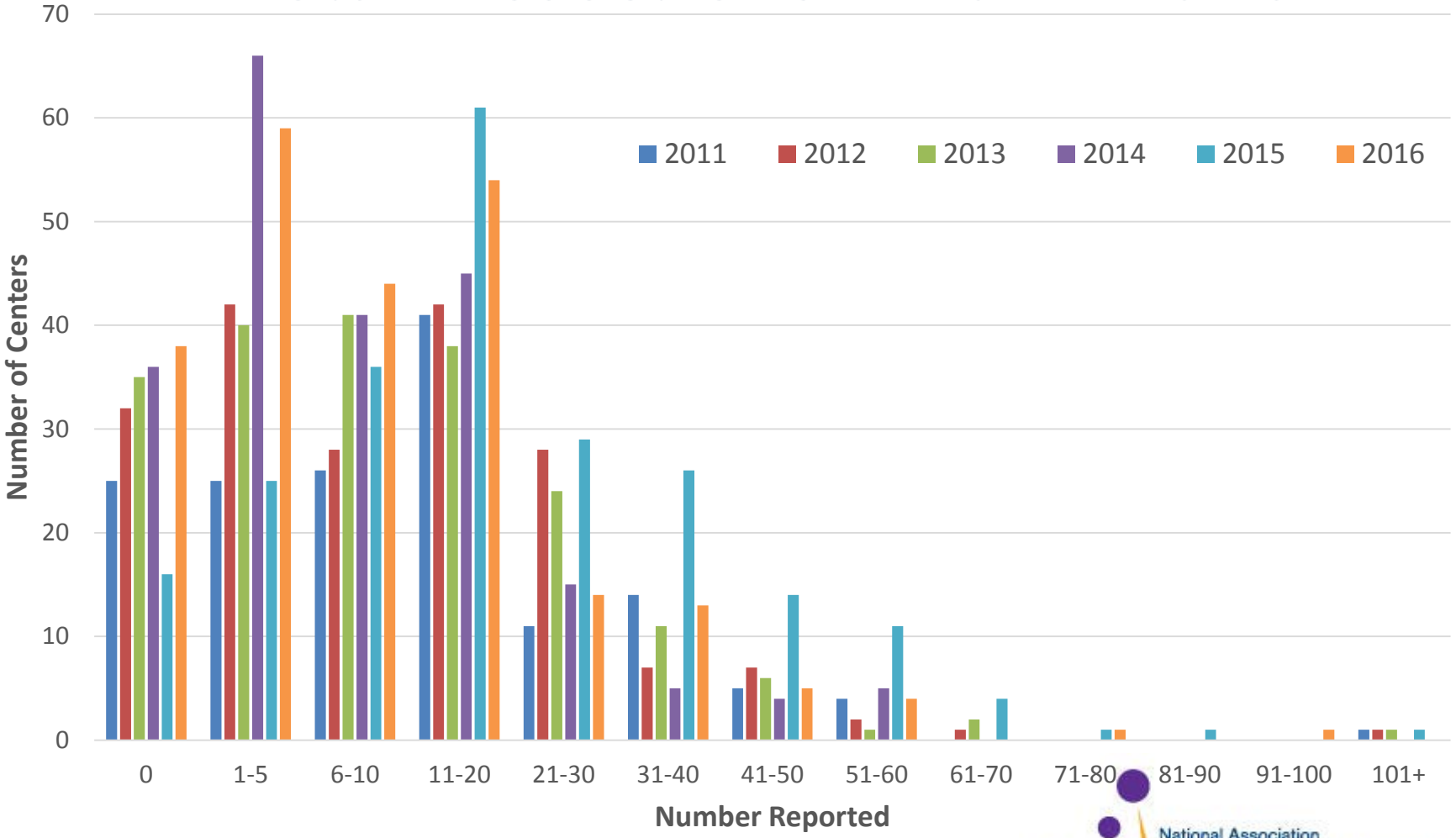
# Total Resections – 2011-2016

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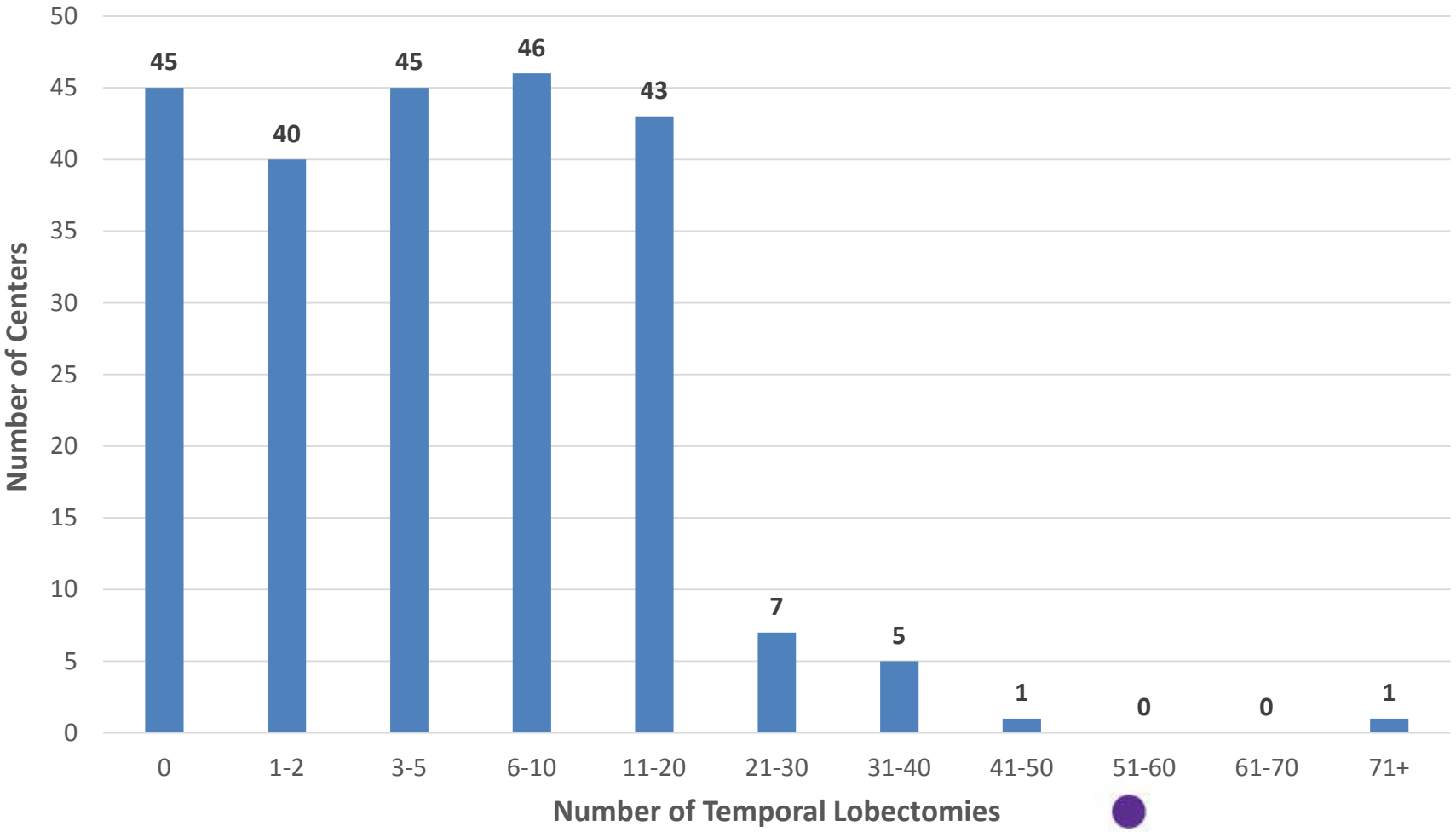
# Total Temporal Lobectomies – 2016

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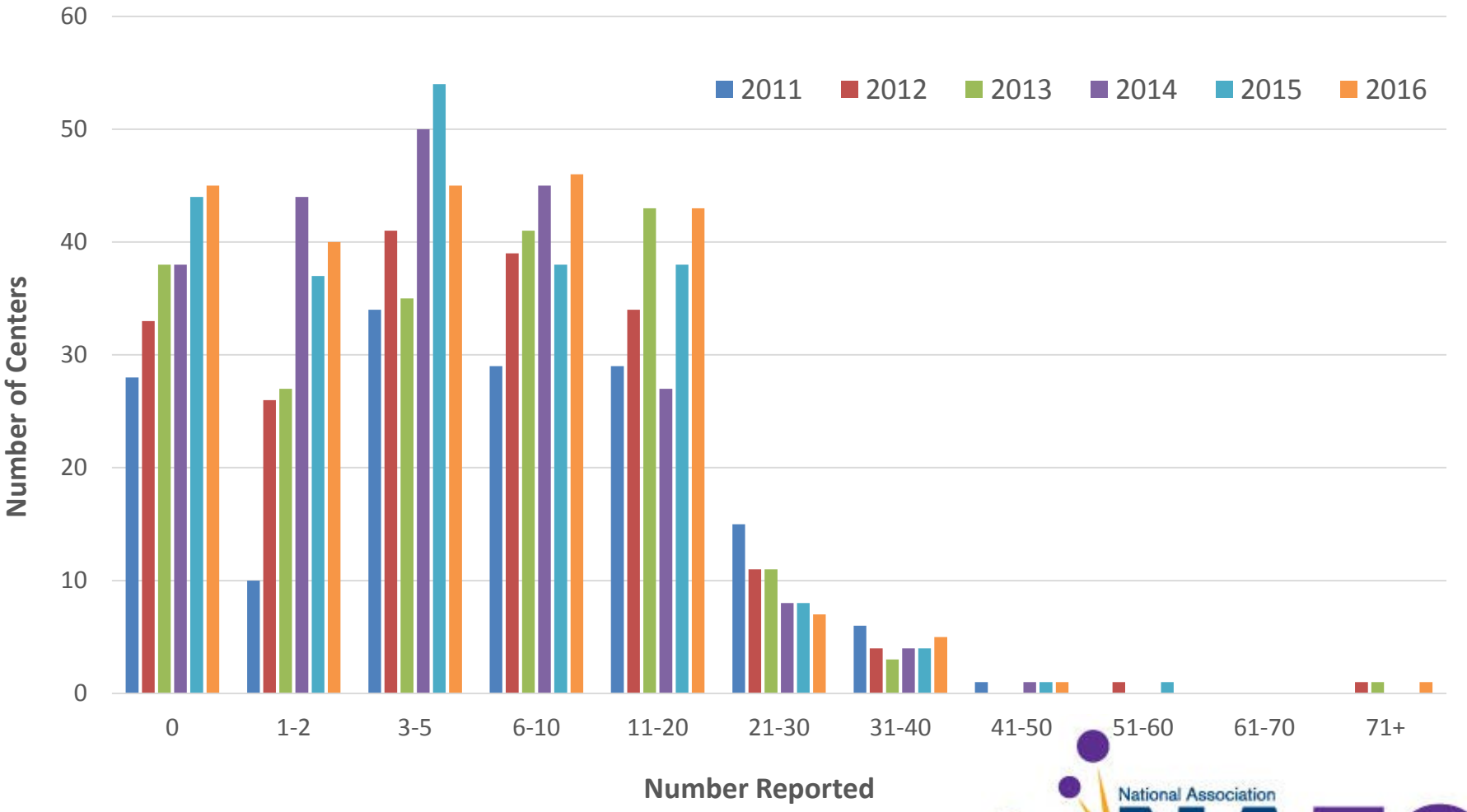
# Temporal Lobectomies – 2011-2016

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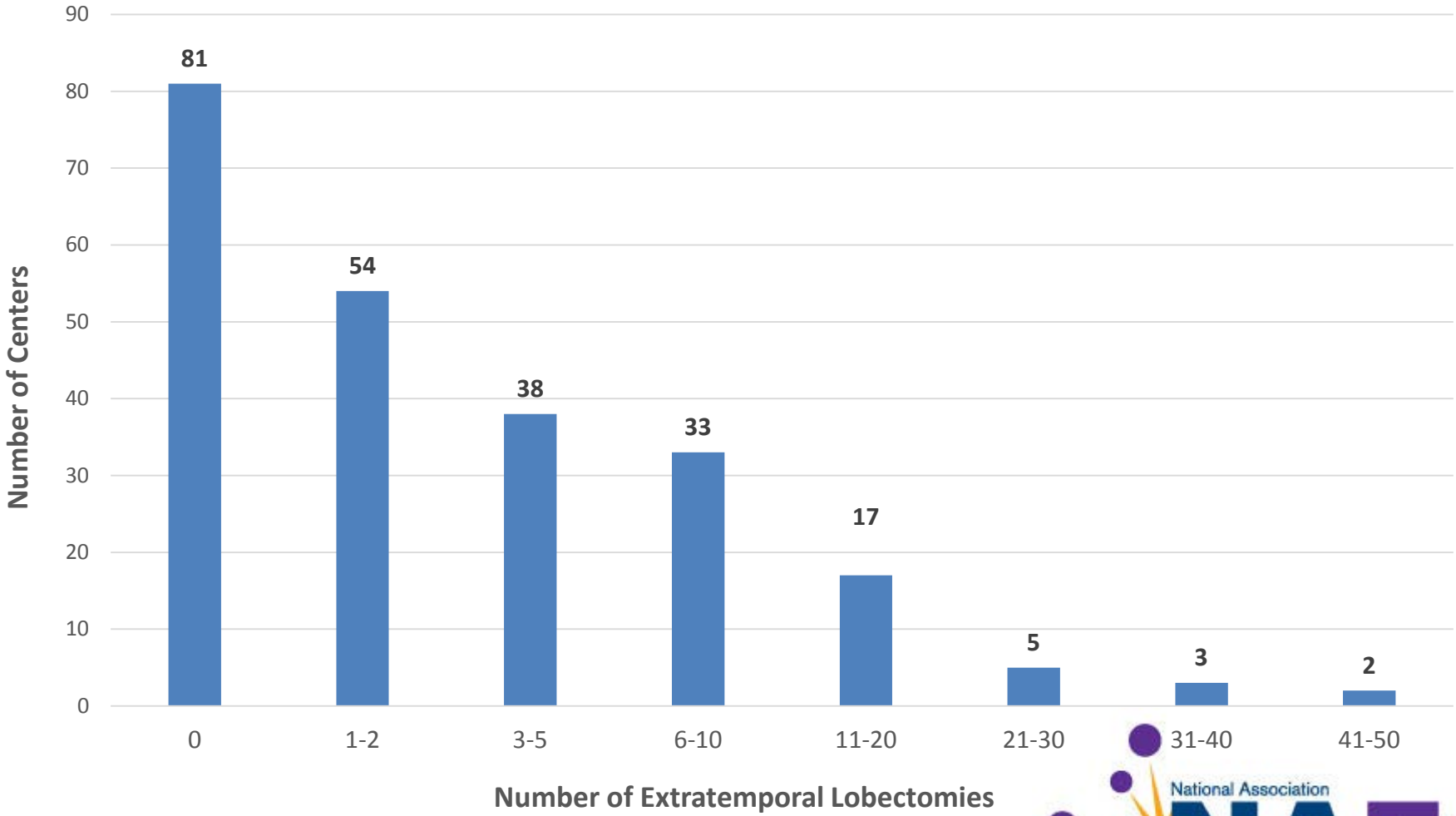
# Total Extratemporal Resections - 2016

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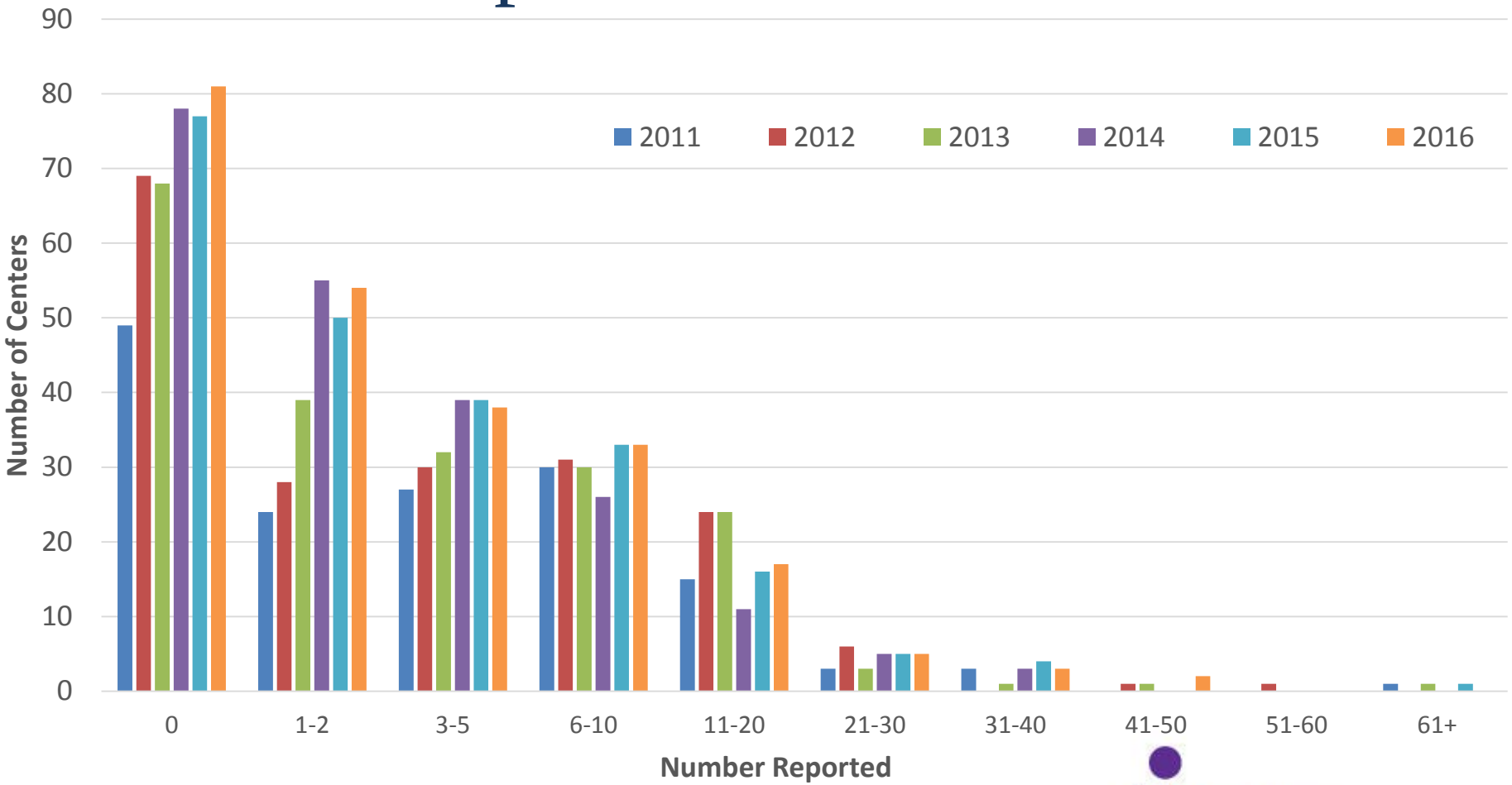
# Extra-Temporal Resections 2011-2016

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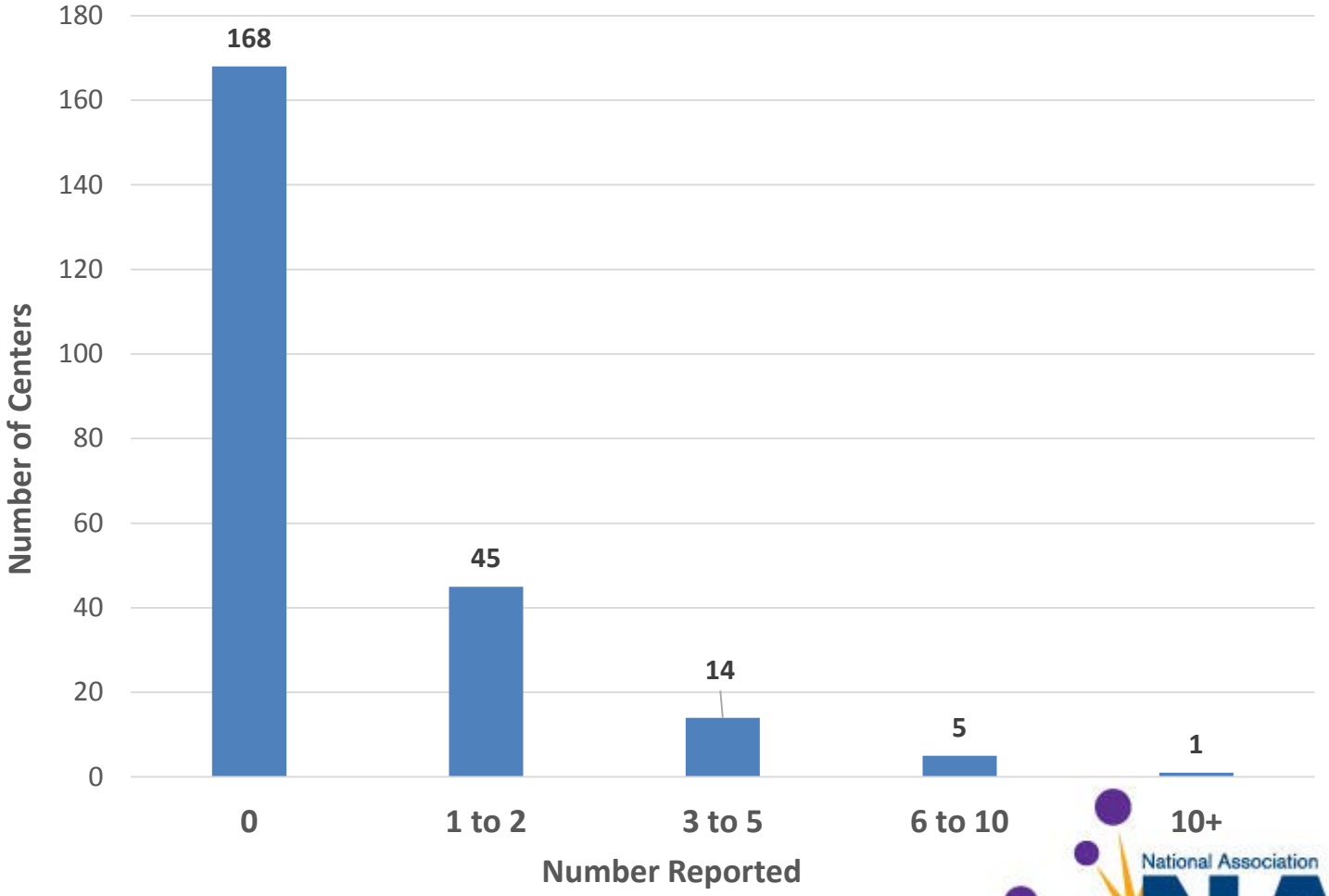
# Corpus Callosotomies - 2016

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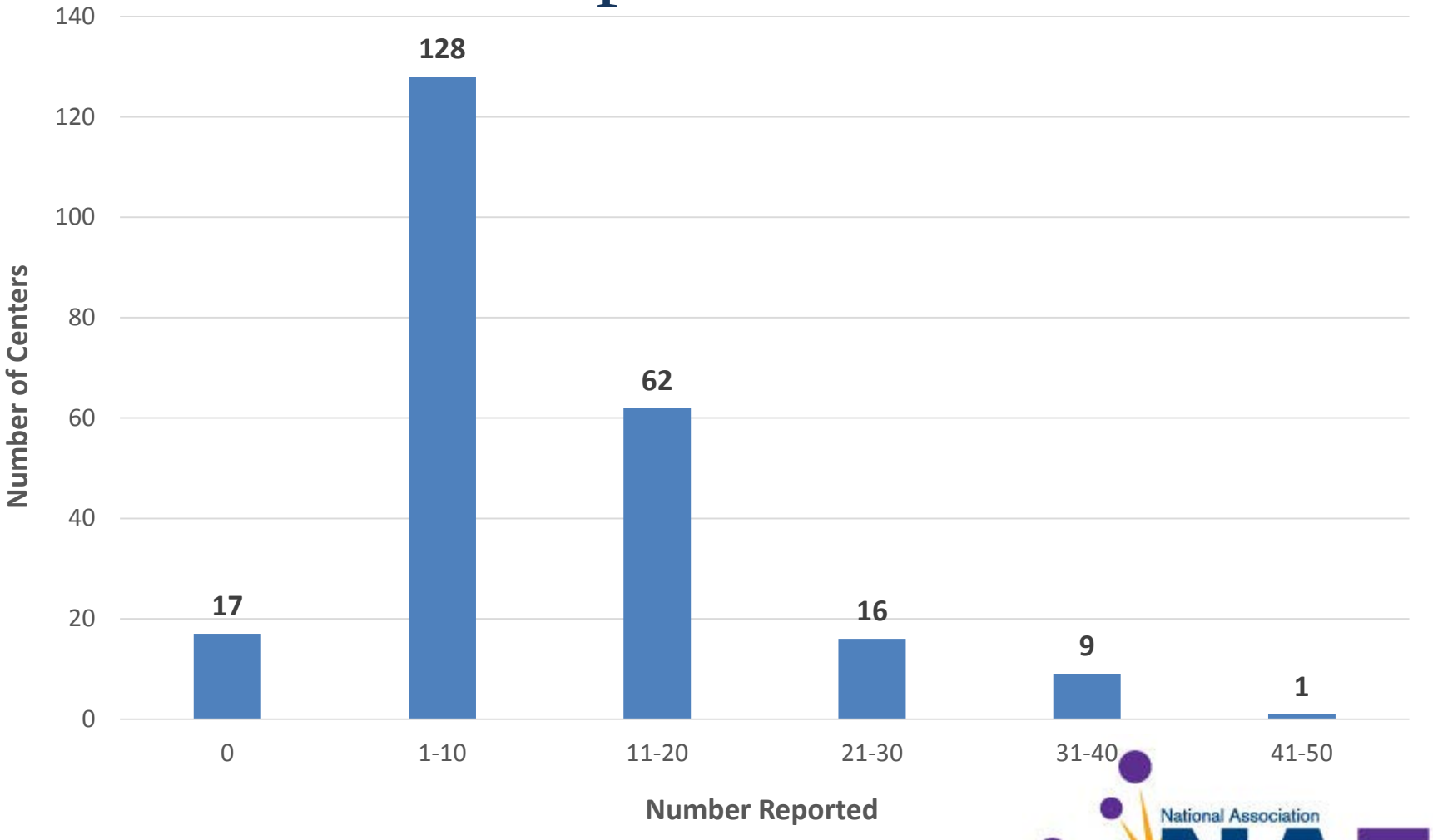
# VNS Implantations - 2016

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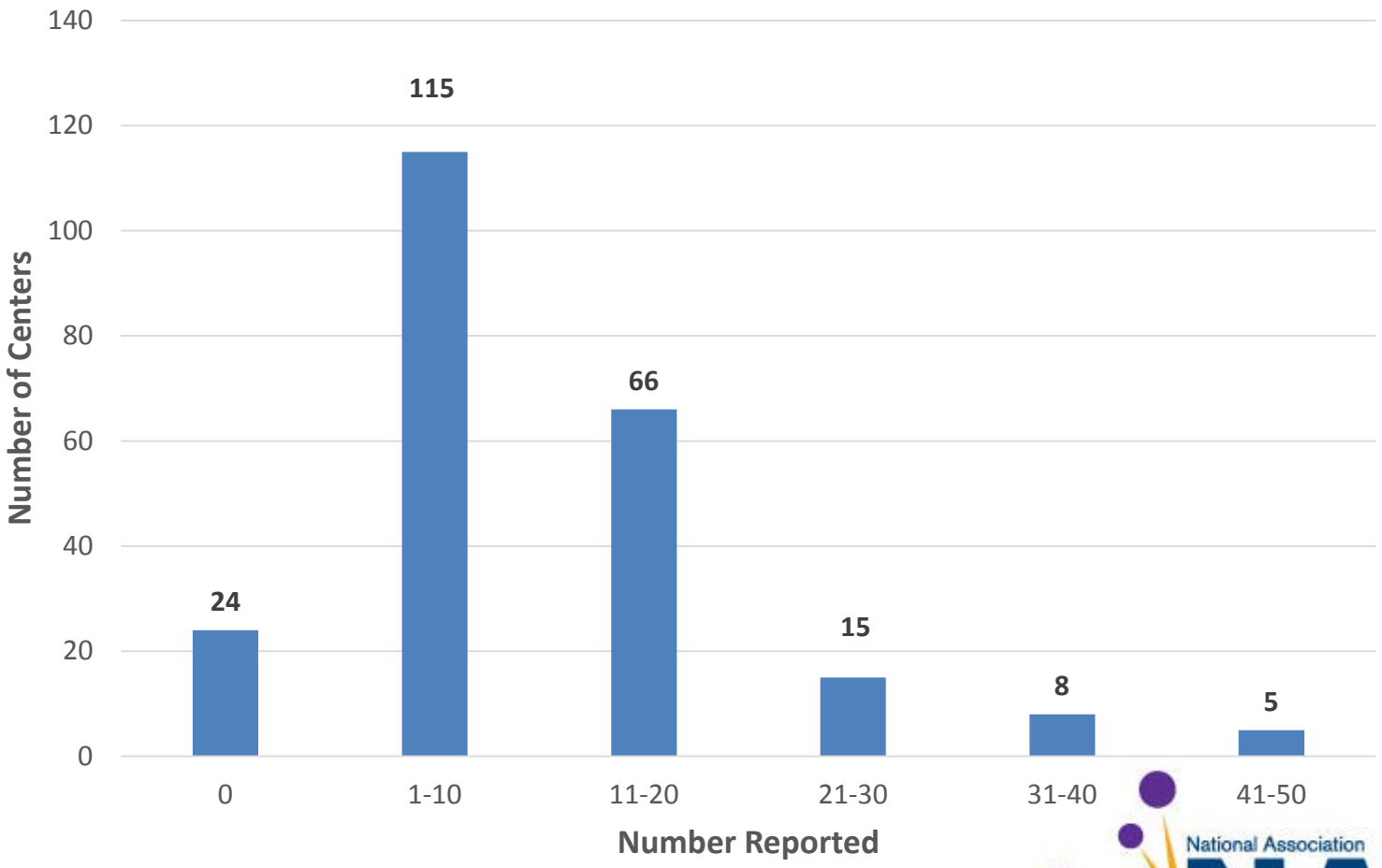
# VNS Redos or Battery Change - 2016

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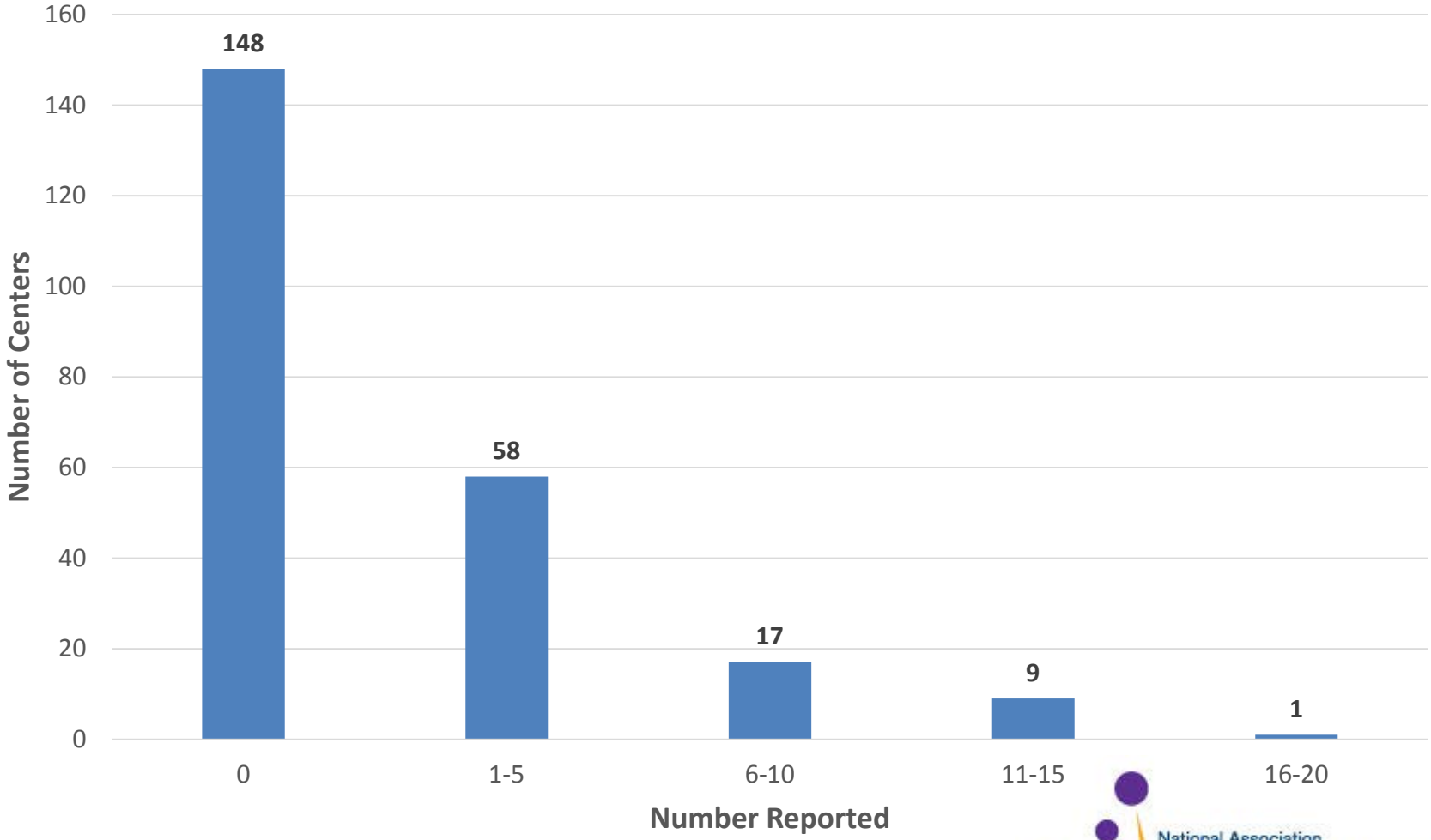
# RNS - 2016

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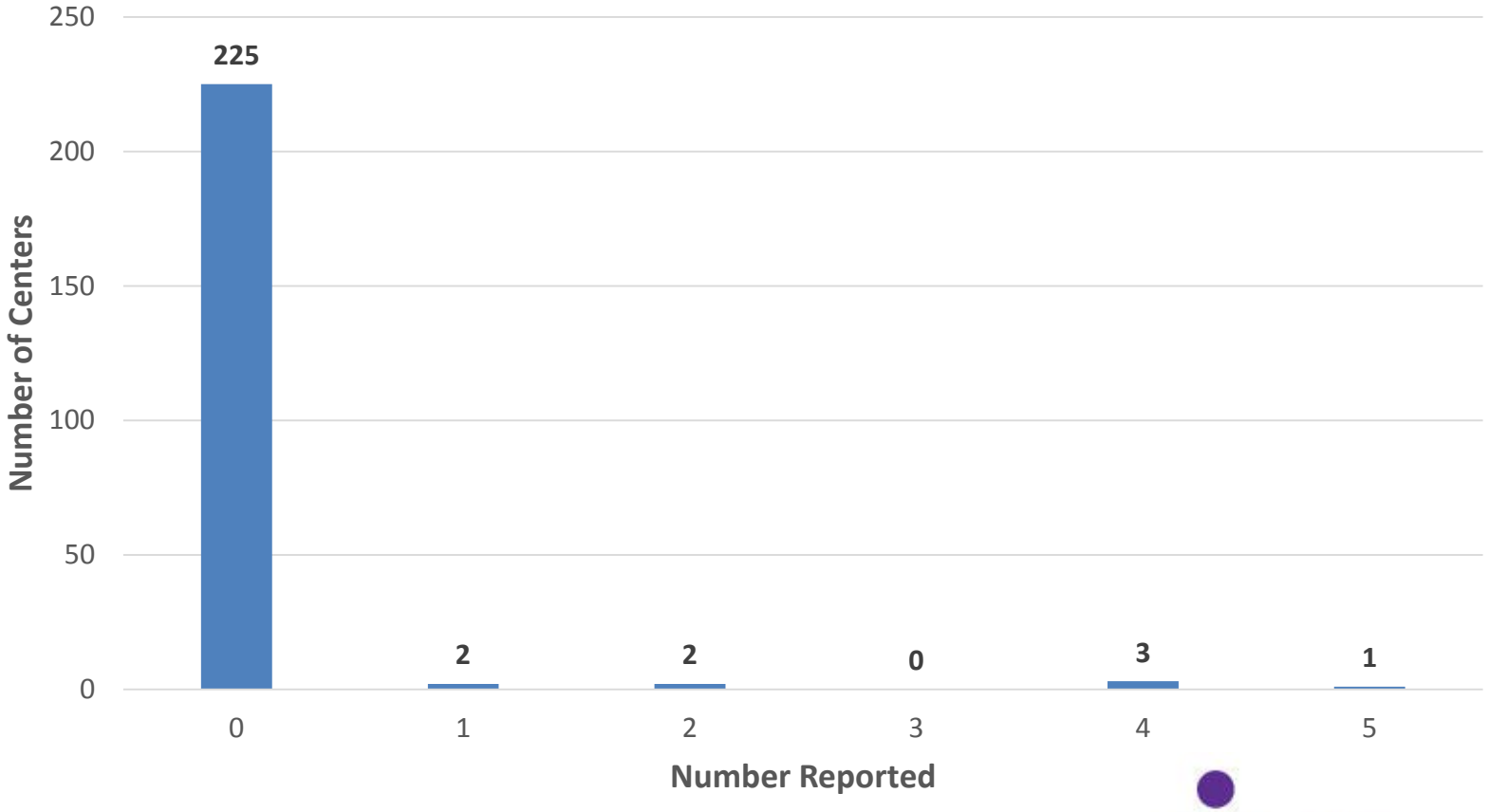
# Radiofrequency/Gamma Knife Surgeries - 2016

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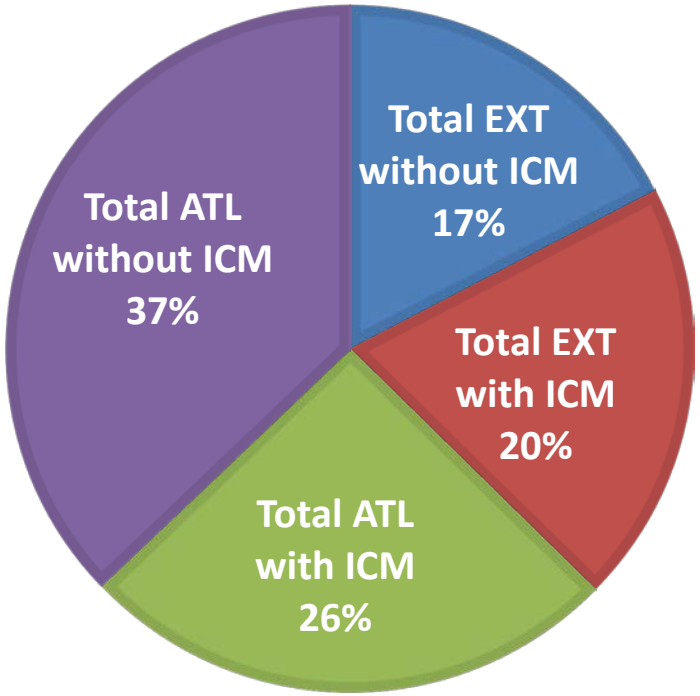
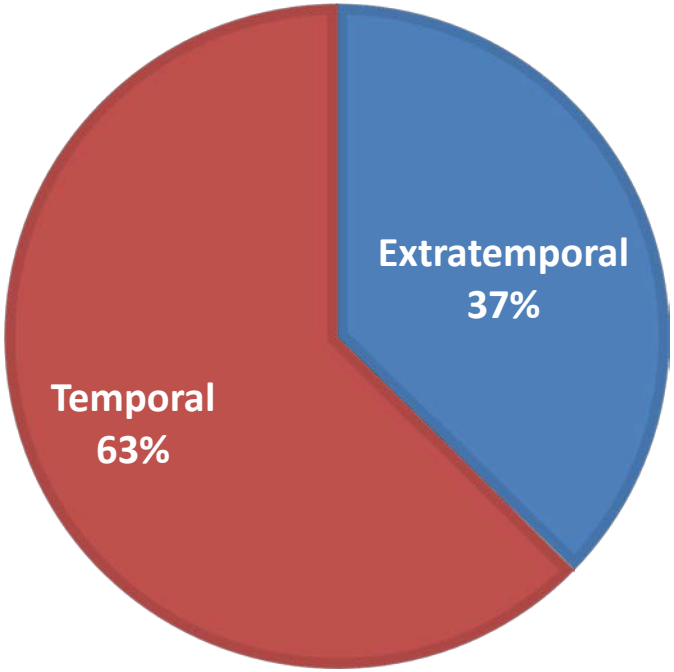
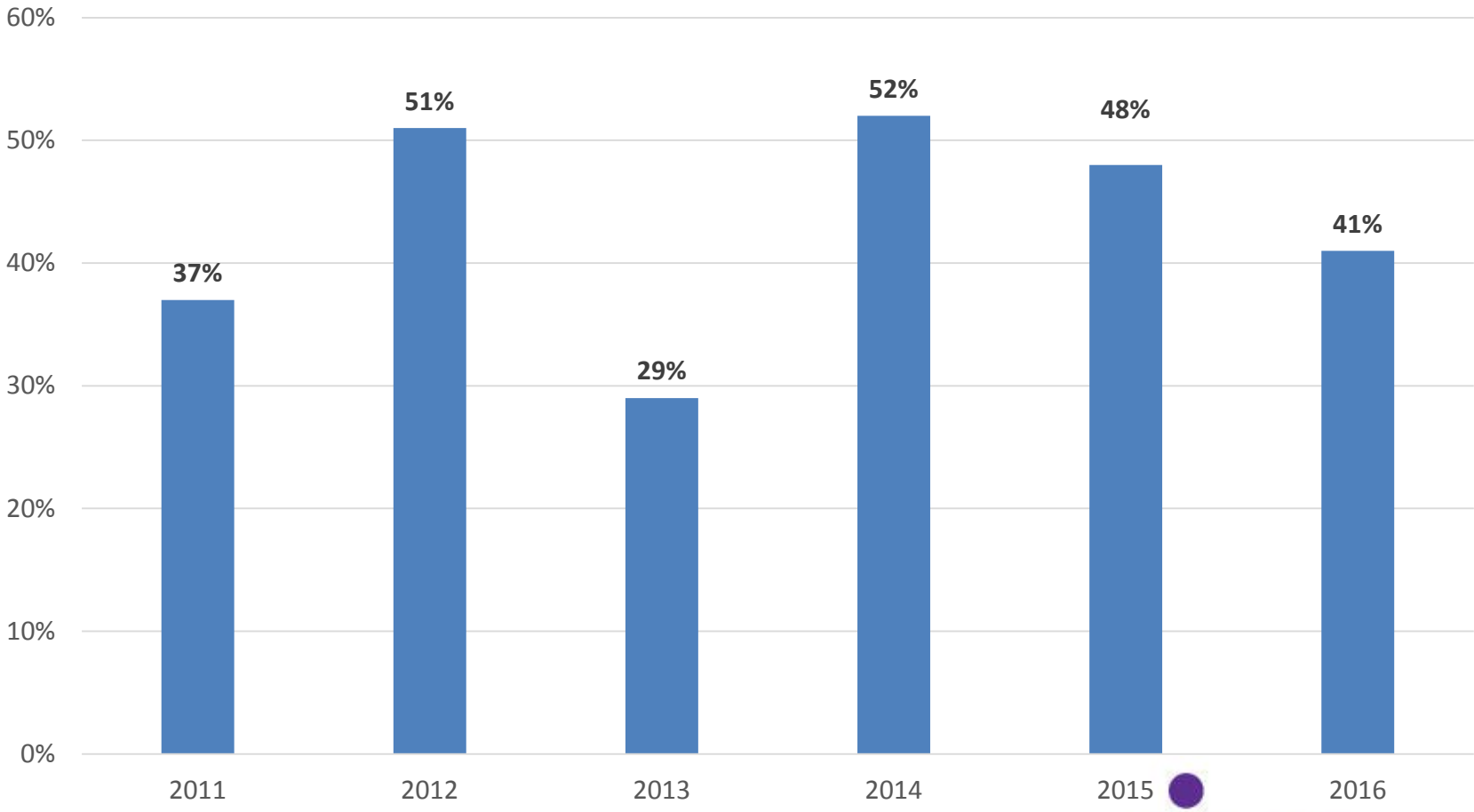
# Total Number of Surgeries - 2016

| Surgery | Total |
|---|---|
| Resections | 2750 |
| ICM without Resection | 615 |
| Total | 3365 |



# ATL with ICM 2011-2016

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# Questions?

# President's Update

Nathan Fountain, MD
NAEC President

# Dr. Robert J. Gumnit, NAEC Founder

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# Outgoing Board Members

Susan Arnold, MD

Children's Medical Center Dallas

Comprehensive Epilepsy Center

Dallas, TX

Fred Lado, MD, PhD

Northwell Health

Manhasset, NY

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# NAEC Board for 2018

| | |
|---|---|
| President | Nathan Fountain, MD, University of Virginia, Charlottesville |
| Vice President | Susan Herman, MD, Beth Israel Deaconess Medical Center, Boston |
| Secretary/ Treasurer | Jerry Shih, MD, University of California, San Diego |
| At-large | Anto Bagic, MD, PhD, FAES, FACNS, University of Pittsburgh |
| At-large | Meriem Bensalem-Owen, MD, University of Kentucky, Lexington |
| At-large | Robert Wechsler, MD, PhD, Idaho Comprehensive Epilepsy Center at St. Luke's, Boise |
| At-large | Mary Zupanc, MD, CHOC Children's, Orange |
| Past President | David Labiner, MD, Banner – University Medical Center Tucson |

# 2017 Financial Picture

**Total Estimated 2017 Income: $507,551**

**Total Estimated 2017 Expenses: $680,316**

| Area of Expense | Estimated Amount |
|---|---|
| Association Operations and Accreditation | $382,721 |
| NAEC Video, Special Projects and Sponsorships | $250,800 |
| Annual Meeting and Board Retreat | $46,795 |

**As of November 30, 2017, NAEC has 247 Member Centers.**

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# 2017 Activities and Accomplishments

## Standard Setting

- Completed 2017 Accreditation Cycle
- Enhanced Criteria
- Guideline update initiated

## Advocacy

- CPT/RUC 95951
- DRG Analysis
- Analysis of Medicare Rules
- Collaborations with AAN, AES, ELC, and EF

## Member Center Support

- Continuous website enhancements
- Criteria Paper
- NAEC Video
- Answer center-specific questions

Assuring quality epilepsy care by supporting strong specialized epilepsy centers

# Accreditation Update – 2017

| | Level 4 | Level 3 | Total # of Centers |
|---|---|---|---|
| **Adult** | 63 | 29 | 92 |
| **Pediatric** | 41 | 5 | 46 |
| **Adult/Pediatric** | 77 | 18 | 95 |
| **Total # of Centers** | 181 | 52 | 233 |

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# 2017 Accreditation Results

| | Level 4 | Level 3 | Total # of Centers |
|---|---|---|---|
| **2-Year** | 146 | 35 | 181 |
| **1-Year** | 25 | 27 | 52 |
| **Total # of Centers** | 171 | 62 | 233 |

10 centers began the accreditation process and either did not complete it or withdrew their application.

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# Commonly Missed Criteria in 2017

- Missing one or more documents – protocol, patient report, or personnel CV
- EEG tech not ABRET certified
- Most common deficiency for level 4 centers: Center did not perform intracranial monitoring in 2015 or 2016.

# New Accreditation Criteria for 2018

- All centers undergoing a full review must upload an admission order set
- Pediatric and Adult/Pediatric Centers must provide
  - 1 vEEG report for a patient under the age of 10
  - Pediatric specific protocols for “Measures to be taken if number, duration, or severity of seizures observed is excessive” and “Management of status epilepticus in hospitalized patients”

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# 2018 Accreditation Timeline

**November 2017**

- Instructions distributed

**January 31, 2018**

- Deadline to pay dues, complete Center Annual Report, and upload required documents

**February 1-15, 2018**

- Review and revise period

**March 1, 2018**

- Final deadline for revisions/additions
- **No materials will be accepted after this date**

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# Accreditation Webinars

- NAEC will hold two identical webinars on the 2018 accreditation process, criteria and timeline:
  - Wednesday, December 13, 2017 5–6 PM EST
  - Tuesday, January 9, 2018 12-1 PM EST

- Please share with your administrators/staff who help with process!

# NAEC Advocacy Activities - Video

https://naec.box.com/s/56wyf6c7rkdnixgfu5llbyol6bcjvpcx

# Promoting Epilepsy Centers through Collaborative Efforts

- American Academy of Neurology– Epilepsy Quality Measure Development
- Epilepsy Foundation/AES
  - National Epilepsy Education and Awareness Collaborative Community of Practice (CDC grant)
  - Registry development with AES, Pediatric Registry and Rare Epilepsy Network (REN)
- NIH/NINDS Forum
  - Poster presented on NAEC and epilepsy center accreditation
- Epilepsy Leadership Council

# Questions?

# DRG Analysis

David Labiner, MD
NAEC Past President

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# Goal of Analysis

- Could reimbursement for inpatient admissions be improved?
- Question: Does Medicare claims data justify a new DRG for patients with intractable epilepsy or moving patients admitted to the EMU to a higher-paying DRG?
- Definitions:
  - MS-DRG 100: Seizures with Major Complications and Comorbidities (MCC)
  - MS-DRG 101: Seizures Without MCC

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# Costs/Payments for All Patients in Seizure DRGs

| | MS-DRG 100 | MS-DRG 101 |
|---|---|---|
| | Entire DRG | Entire DRG |
| Number of Discharges | 25,259 | 45,319 |
| Average Length of Stay | 5.6 | 3.2 |
| Average Routine Care Days | 2.9 | 2.1 |
| Average Intensive Care Days | 2.6 | 1.1 |
| Average Total Cost | $11,035 | $5,671 |
| Cost % difference vs all other | N/A | N/A |
| Average base payment (FY2016) | $11,172 | $6,077 |
| Average outlier payment (FY2016) | $580 | $22 |

# Costs/Payment for Patients with Intractable Epilepsy

| | MS-DRG 100 | | MS-DRG 101 | |
|---|---|---|---|---|
| | Intractable Epilepsy Dx | All Other | Intractable Epilepsy Dx | All Other |
| Number of Discharges | 1,530 | 23,729 | 3,398 | 41,921 |
| Average Length of Stay | 7.2 | 5.5 | 4.0 | 3.1 |
| Average Routine Care Days | 3.5 | 2.9 | 2.6 | 2.0 |
| Average Intensive Care Days | 3.6 | 2.5 | 1.3 | 1.0 |
| Average Total Cost | $14,641 | $10,803 | $6,708 | $5,587 |
| Cost % difference vs all other | 36% | | 20% | |
| Average base payment (FY2016) | $11,967 | | $6,852 | |
| Average outlier payment (FY2016) | $1,687 | | $108 | |

# Costs/Payments for Patients with Video EEG

| | MS-DRG 100 | | MS-DRG 101 | |
|---|---|---|---|---|
| | VEEG | All Other | VEEG | All Other |
| Number of Discharges | 1,937 | 23,322 | 4,725 | 40,594 |
| Average Length of Stay | 7.3 | 5.4 | 3.8 | 3.1 |
| Average Routine Care Days | 3.9 | 2.9 | 2.7 | 2.0 |
| Average Intensive Care Days | 3.2 | 2.5 | 1.1 | 1.1 |
| Average Total Cost | $14,712 | $10,730 | $7,121 | $5,502 |
| Cost % difference vs all other | 37% | | 29% | |
| Average base payment (FY2016) | $13,267 | | $7,319 | |
| Average outlier payment (FY2016) | $1,741 | | $78 | |

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# Results of DRG Analysis

- Costs are higher for intractable epilepsy patients and patients with VEEG but not high enough to move them from MS-DRG 101 to 100
- MS-DRG 100 and 101 are the highest-paid neurology DRGs so there is not an obvious place to move the patients if the costs justified a move

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# Medicare Eligibility

| | All Epilepsy | | Intractable Epilepsy | | EEG procedure | |
|---|---|---|---|---|---|---|
| | MS-DRG 100 | MS-DRG 101 | MS-DRG 100 | MS-DRG 101 | MS-DRG 100 | MS-DRG 101 |
| Disabled /ESRD | 42% | 50% | 61% | 76% | 44% | 61% |
| Aged | 58% | 50% | 39% | 24% | 56% | 39% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% |

**Takeaway:**
**Code for comorbidities and complications**

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# Accredited vs. Non-Accredited Centers

| | MS-DRG 100 | | MS-DRG 101 | |
|---|---|---|---|---|
| | Accredited | Not Accredited | Accredited | Not Accredited |
| Number of Discharges | 4,810 | 20,449 | 10,041 | 35,278 |
| Average Total Cost | $13,474 | $10,461 | $6,537 | $5,425 |
| # cases with EEG procedure | 1,059 | 887 | 2,975 | 1,750 |
| % cases with EEG procedure | 22% | 4% | 30% | 5% |
| Average base payment (FY2016) | $12,880 | $10,770 | $7,061 | $5,797 |
| Average outlier payment (FY2016) | $1,197 | $435 | $54 | $14 |

**Takeaway:**

- **NAEC Centers have higher costs and higher payments**
- **NAEC Centers have a minority of the Medicare admissions.**

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# “Indications and Methodology for Video-Electroencephalographic Studies in the Epilepsy Monitoring Unit” Publication

Jerry Shih, MD

NAEC Secretary/Treasurer

# NAEC Publication

Accepted: 5 October 2017
DOI: 10.1111/epi.13938

CRITICAL REVIEW AND INVITED COMMENTARY

Epilepsia

**Indications and methodology for video-electroencephalographic studies in the epilepsy monitoring unit**

Jerry J. Shih[1,*] | Nathan B. Fountain[2,*] | Susan T. Herman[3,*] | Anto Bagic[4,*] | Fred Lado[5,*] | Susan Arnold[6,*] | Mary L. Zupanc[7,*] | Ellen Riker[8] | David M. Labiner[9,*]

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[3]Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA
[4]University of Pittsburgh, Pittsburgh, PA, USA
[5]Northwell Health, Manhasset, NY, USA
[6]University of Texas Southwestern Medical Center, Dallas, TX, USA
[7]Children's Hospital of Orange County/University of California, Irvine, Orange, CA, USA
[8]National Association of Epilepsy Centers, Washington, DC, USA
[9]University of Arizona, Tucson, AZ, USA

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Email: jerryshih@ucsd.edu

**Funding information**
National Science Foundation; University of Virginia from Medtronic; Neuropace; Insightech; SK Life Sciences; Neurelis; Epilepsy Foundation; Centers for Disease Control and Prevention; the National Institutes of Health; UCB Pharma; Upsher-Smith Laboratories; MonoSol Rx

**Summary**

Although the epilepsy and neurology communities have position papers on a number of topics pertaining to epilepsy diagnosis and management, no current paper exists for the rationale and appropriate indications for epilepsy monitoring unit (EMU) evaluation. General neurologists, hospital administrators, and insurers also have yet to fully understand the role this type of testing has in the diagnosis and management of individuals with paroxysmal neurologic symptoms. This review outlines the indications for long-term video-electroencephalography (VEEG) for typical elective admissions to a specialized inpatient setting. The common techniques used in EMUs to obtain diagnostic information are reviewed. The added benefit of safety measures and clinical testing above that available for routine or long-term ambulatory electroencephalography is also discussed. The indications for admission to the EMU include differential diagnosis of paroxysmal spells, characterization of seizure types, presurgical epilepsy evaluations, seizure quantification, monitoring medication adjustment in a safe setting, and differentiation between seizures and side effects. We conclude that the appropriate use of this specialized testing can lead to an early and correct diagnosis in a variety of clinical circumstances. The EMU evaluation is considered the gold standard test for the definitive diagnosis of epilepsy and seizure-like spells.

**KEY WORDS**
epilepsy monitoring, epilepsy surgery, inpatient specialized testing, nonepileptic events

## 1 | INTRODUCTION

Epilepsy, which affects 1 in 26 people, is an active problem in approximately 0.3% of the U.S. population, or 9 million Americans.[1,2] Estimates of prevalence are as high as 2%-3% in parts of rural Central America and Africa.[2,3] Initial diagnosis is typically based on a description of clinical paroxysmal events (seizures) and medical history provided by the individual or observers. Supporting information may be obtained from routine outpatient electroencephalography (EEG) or neuroimaging. When additional diagnostic

*Members of the Board of Directors of the National Association of Epilepsy Centers. Ellen Riker is the Executive Director of the National Association of Epilepsy Centers.




- Authored by the NAEC Board
- Accepted for publication in Epilepsia October 5, 2017
- Paper provides rationale and indications for EMU evaluation.
- Available online at: http://onlinelibrary.wiley.com/doi/10.1111/epi.13938/full.

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# Key Points

- Video-EEG performed in epilepsy monitoring units differs from outpatient ambulatory VEEG, inpatient bedside VEEG, and VEEG in the ICU.
- Three common indications for EMU admissions are differential diagnosis, pre-surgical evaluation and characterization of seizure types.
- The inpatient EMU evaluation is essential to determine if individuals with drug-resistant epilepsy are candidates for epilepsy surgery.
- Monitoring in a specialized epilepsy monitoring unit is likely safer, more efficient, and more effective than bedside VEEG monitoring.
- The appropriate use of specialized, inpatient EMU evaluation can lead to an early and correct diagnosis in many clinical circumstances.

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# Indications for EMU Admission

- Differential Diagnosis
- Seizure/Syndrome Classification
- Pre-surgical Evaluation
- Ictal SPECT
- Seizure Quantification
- Medication Adjustment
- Differentiation Between Seizures and Side Effects

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# How to Use the Article

- Share it with your billing staff for prior authorizations and claims questions/denials.
- Promote with your institution to justify need for staffing and other resources.
- NAEC can distribute to major insurers, Medicaid Directors and Medicare contractors.

# CPT/RUC Update 95951

Ellen Riker

NAEC Executive Director

# CMS Identifies 95951 Under High Volume Screen

- 2017 Medicare Physician Fee Schedule final rule: 95951 identified as a “high volume service”
  - Total Medicare utilization of 10,000 or more claims
  - Volume growth in claims increased by at least 100% from 2009 -2014
- 95951 Medicare claims data: from 53,000 (2009) to 115,000 (2014)

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# Proposals Presented to CPT Panel

- AAN, ACNS, NAEC presented a proposal to make changes to the existing long term EEG monitoring codes at the June 2017 meeting and September 2017 meeting.
- The CPT Panel asked the medical societies to work with other interested parties – companies that provided VEEG monitoring services and ASET – and present again in Feb 2018.
- A revised proposal for the February meeting has been submitted.

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# CPT Panel Decisions

- The proposals submitted to the CPT Panel are confidential and the NAEC representatives have signed confidentiality agreements.
- The CPT meetings are public and those in attendance can see the proposal when it is presented.
- AMA embargoes CPT Panel decisions until publication.

# What Happens Next?

- Once codes are approved by CPT Panel, AMA RUC seeks input on code values by requesting medical societies to survey physicians that perform the service
- NAEC held a webinar in 2017 on coding and showed the AMA RUC's video on the relative value update process and surveys.  Similar webinar will likely be repeated in 2018.
- Based on CPT, RUC, and CMS timing, any new codes will likely not take effect until CY 2020

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# Questions?