

# **2018 Eleventh National Doctors of Nursing Practice Conference**



**Doctors of Nursing Practice**

**Nurse practitioners forge the path to  
improvements in access and outcomes for  
the neurosurgical patient.**

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**Doctors of Nursing Practice**

I do not have any relevant relationships with a commercial interest organization.



**Doctors of Nursing Practice**

“Change is the law of life. And those who look only to the past or present are certain to miss the future.”

JFK



Doctors of Nursing Practice

# The Waiting Game

tick,  
tock,  
tick,  
tock.



New patient physician appointment wait time is an average 24 days in 15 of the largest U.S. cities, up from 18.5 days in 2014.

Source: Merritt Hawkins 2017 Survey of Physician Appointment Wait Times and Medicare and Medicaid Access



**Neurosurgery has historically had long appointment wait times**

# Waiting...



## Consequences

Long appointment Wait Times  
= **Poor Patient Satisfaction**

Poor Satisfaction =  
**Lower Quality Outcomes**

(Prentice, Davies, & Pizer, 2013), (Sawatzky, Singal, & Singal, 2013), (Jakimowicz, Stirling, & Duddle, 2014), & (Murray, 2011).



INSTITUTE OF MEDICINE

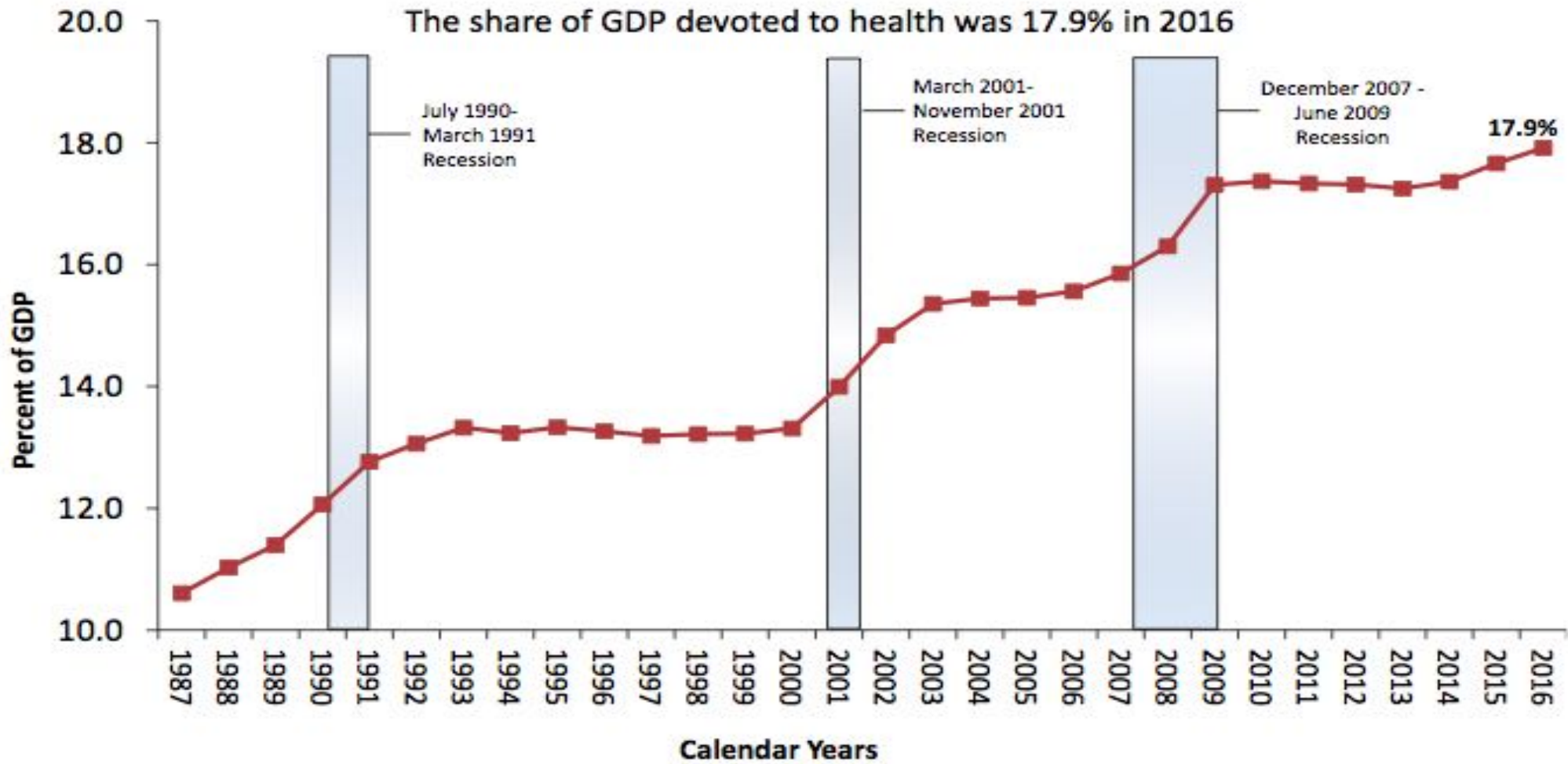
*OF THE NATIONAL ACADEMIES*

Advising the nation • Improving health

The Institute of Medicine (IOM) (2001) states that high quality care must be patient centered, timely, efficient, and equitable.

Nurses and physicians need to work together inter-professionally to devise innovative ways in which quality, effective, and efficient care is available to the surge of patients accessing healthcare as a result of the implementation of the Affordable Care Act (ACA).

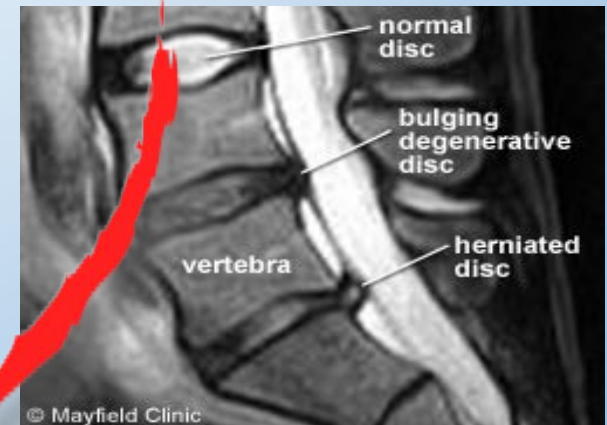
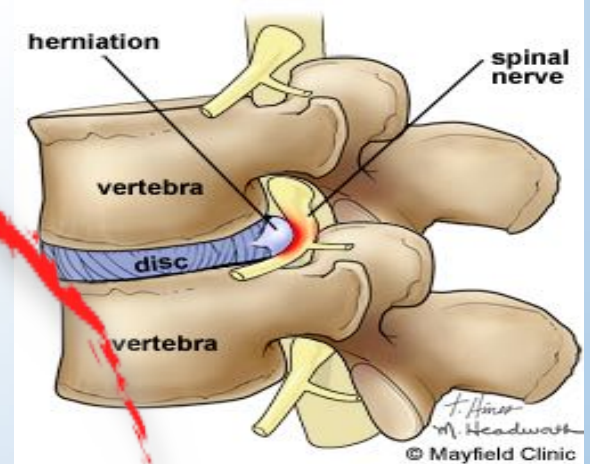
The share of GDP devoted to health was 17.9% in 2016



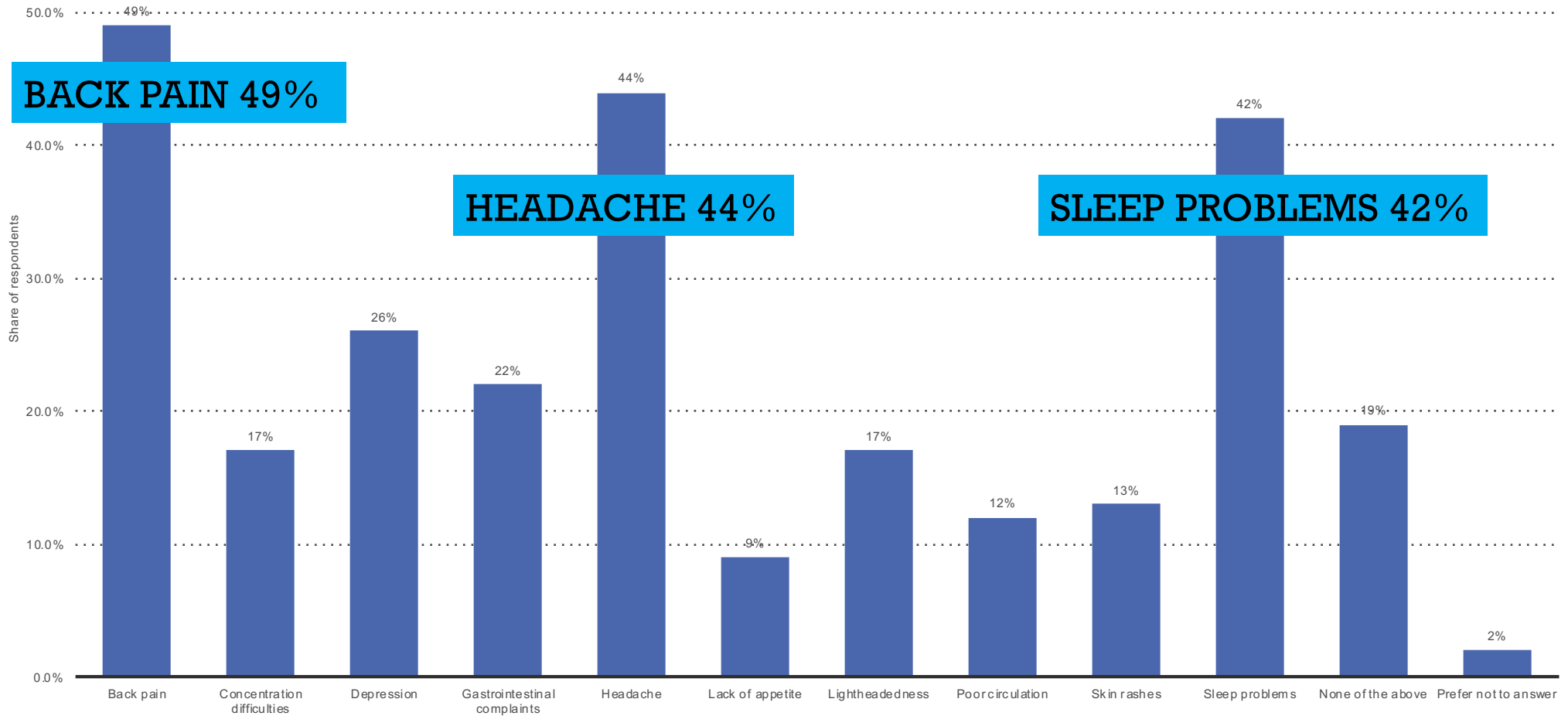


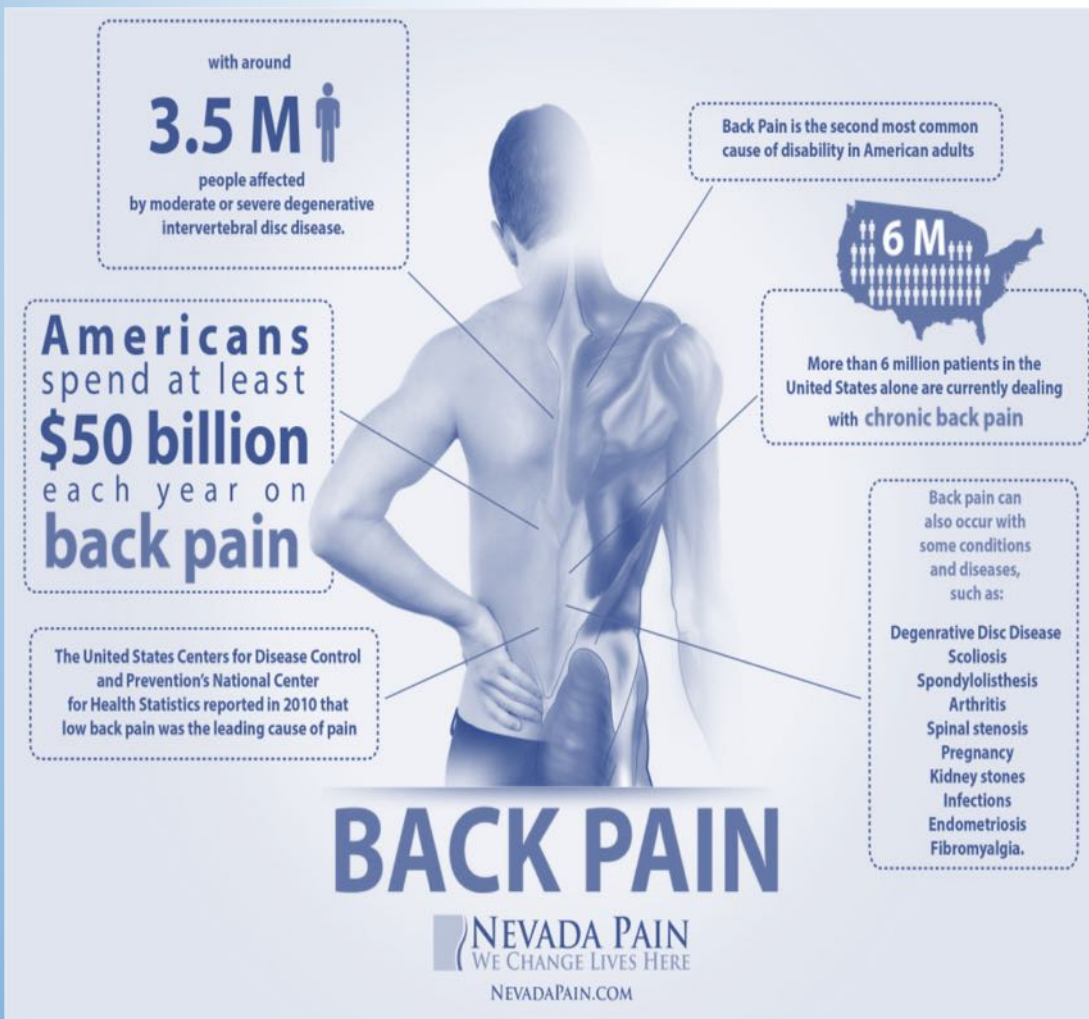
## Back pain:

1. **80%** of adults will experience
2. One of the most common reason people visit their provider (**52.3 million**) **16%** of the population
3. Leading cause of job disability and missed work days
4. Americans spend at least **\$50 billion** each year on back pain



## Percentage of adults in the U.S. who were prone to select symptoms as of 2017





## Healthy People 2020

**Goal** → *Reduce  
chronic back pain*

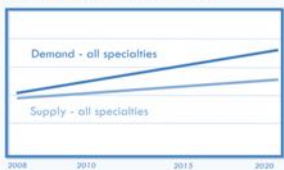
**How to accomplish:**  
*See patients in the acute  
phase more quickly and  
facilitate treatment.*

# Physician Shortage

The Association of American Medical Colleges predicts a shortage of as many as 150,000 physicians by the year 2025.

Prepared by:    
 Placement and Locum Tenens Healthcare Placement Firm

## SUPPLY and DEMAND



## our AGING POPULATION

Nearly one-third of all physicians will retire in the next decade.

By 2030, the elderly population will reach nearly 72.1 million - more than twice their number in 2000. Over the next 30 years, the fastest growing segment of the population will require the most care.

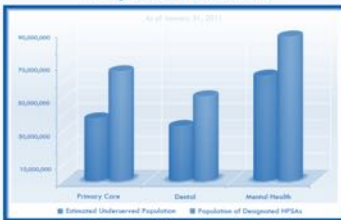


## the HEALTH GAP

Experts estimate the impact of the shortage will more severely affect underserved populations, including the over 50 million Americans who already live in rural and poor neighborhoods where health care services are scarce.

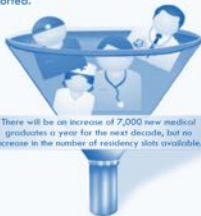
Health Professional Shortage Areas (HPSAs) are designated as having a shortage of primary medical care, dental or mental health providers.

## Designated HPSA Statistics



## the TRAINING CRISIS

There were 37,556 registered applicants for the 2010 Residency Match, and 22,809 first-year positions offered. In 2009, a 2% increase in the number of first-year medical students was reported.



There will be an increase of 7,000 new medical graduates a year for the next decade, but no increase in the number of residency slots available.

## DEFICIT by REGION

According to the most recent data, 17,322 additional physicians are needed to meet the need for Primary Care practitioners in all designated Primary Care shortage areas. How many PCPs are needed in each region?



# Association of American Medical Colleges -AAMC (2017)

Project overall **physician shortage** between

- **40,800 – 104,900 by 2030**

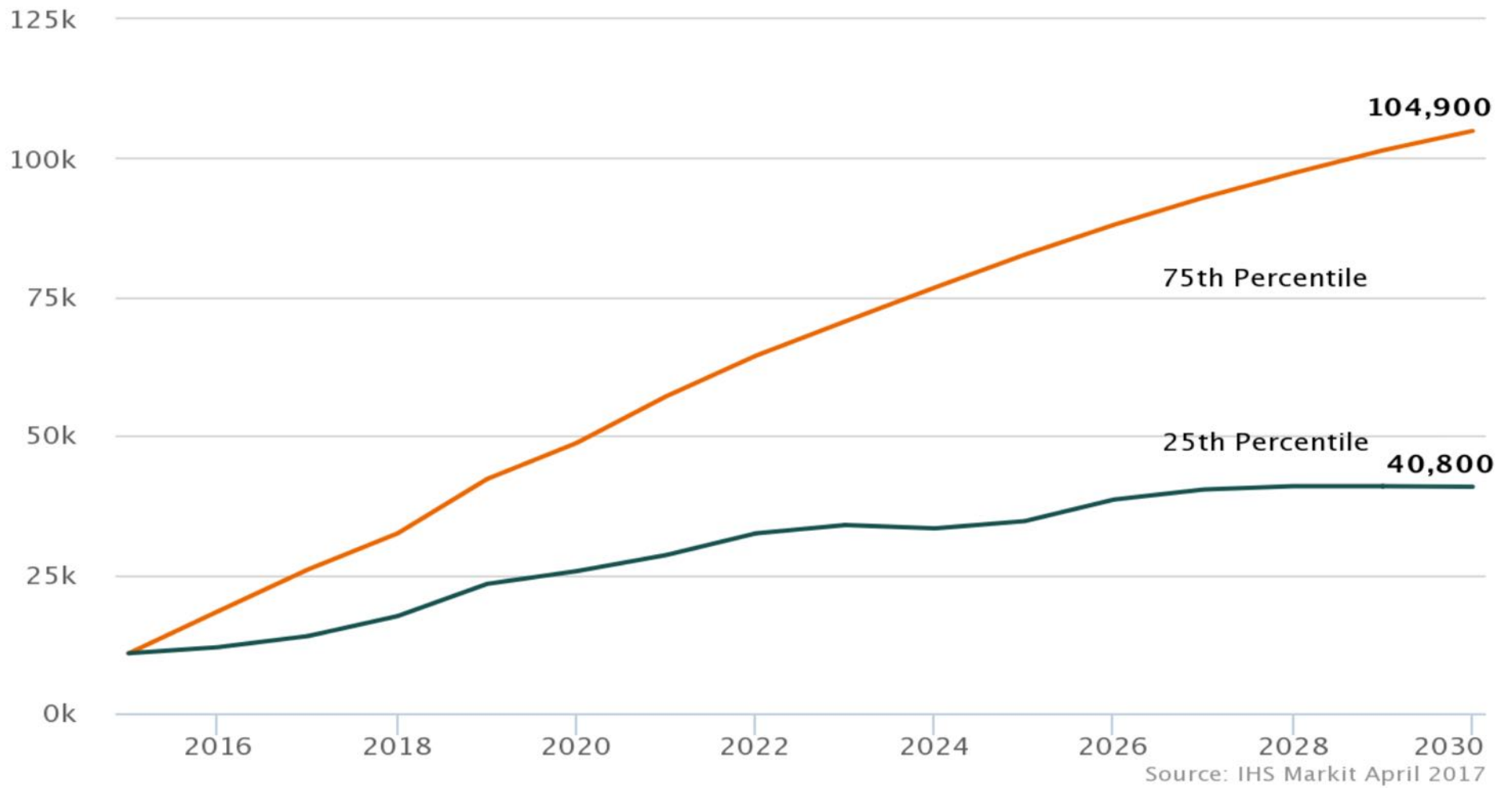
Insufficient supply of specialty physicians by 2025

- **Deficit 33,500 -61,800**

**Physicians vs. APRN and Physician Assistants (PAs)**

- **Will fall as supply of APRN and PAs grows faster than physician supply**

## Projected Total Physician Shortfall, 2015–2030



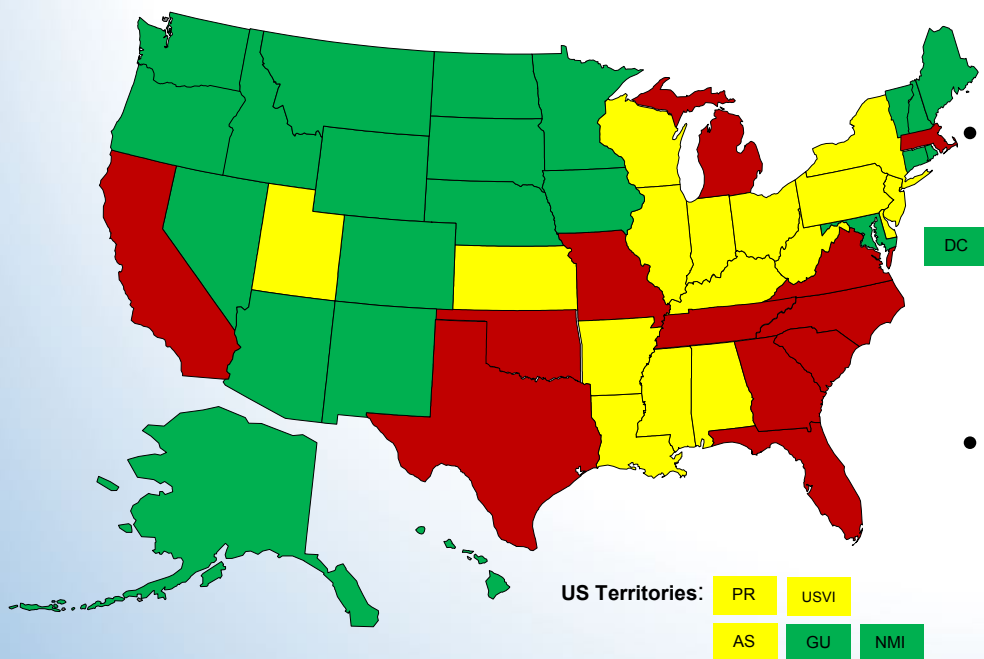
# Surgeon Workforce

- ❑ Current ratio of surgeon to patient
  - 1:61,000
  - 5,700 hospitals with **less than 3,700 practicing neurosurgeons**
- ❑ 102 accredited neurosurgical residency training programs in U.S.
  - Proposed Solutions
    - Shortening residency/training programs
    - Increase number of programs
    - Create “general” neurosurgeon
- ❑ AANS/CNS Position Statement
  - Team-based care
  - **Use “mid-level providers”**



# APRN Workforce

## American Association of Nurse Practitioners - AANP Fact Sheet (2017)



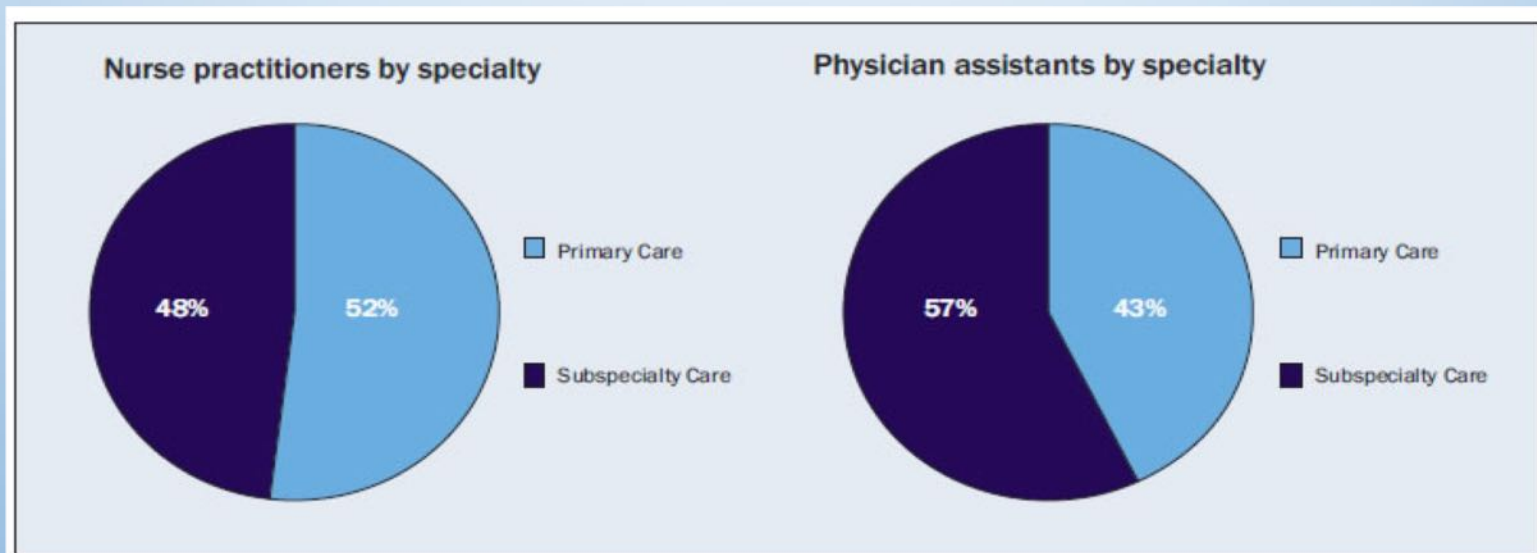
(AANP, 2018)

- An estimated **23,000** new NPs completed their academic programs in 2015-2016
- There are more than **234,000** nurse practitioners (NPs) licensed in the U.S. NPs hold prescriptive privileges, including controlled substances in all 50 states and D.C.
- Nearly three in four NPs are accepting new Medicare patients and **77.9%** are accepting new Medicaid patients
- The majority (**61.4%**) of NPs see 3 or more patients per hour

## ARPNs in Specialty Care

### National Sample Survey of Nurse Practitioners -NSSNP (2012)

- 1/3 work in specialty practices (48,000 of 154,000 licensed NPs)
  - Today that is nearly 78,000 of all licensed APRNs





## Expansion of APRN Workforce

The APRN workforce is growing at a fast rate.

- Graduation up 15.5% from the 2014 – 2015 academic year

By 2024, the Bureau of Labor Statistics projections

- NP profession will have grown by 35%
- PA profession by 30%
- And only 13% for physicians (excluding anesthesiologists and surgeons).

**“Nurse practitioners continue to be one of the solutions to America’s health care,” said AANP CEO David Hebert. “As health care reform moves forward, nurse practitioners will be front and center. The increasing number of individuals choosing to be a nurse practitioner is an affirmation of this outstanding profession.”**

## NP Clinics: Just to Name a Few

- ❑ Primary Care
- ❑ Multiple Specialties
  - Oncology/Hematology
  - Rheumatology
  - Orthopedics
  - Neurology
  - Reproductive Health
    - STIs



# Ortho???

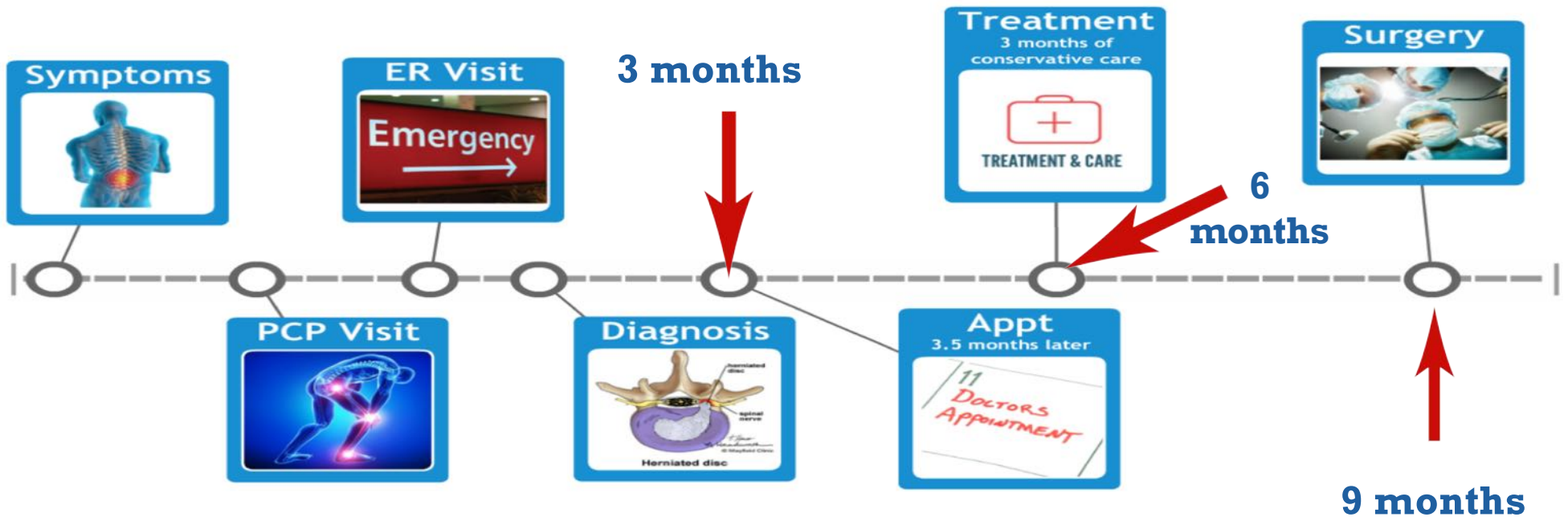
## American Academy of Orthopaedic Surgeons (AAOS) 2011 report

**”Must haves”** for successful profitable practice:

**Nurse Practitioners or Physician Assistants  
Lead to improvements in physician productivity,  
patient satisfaction, and quality of care**

IMAGINE. . . .

Excruciating pain, no answers, no treatment



Nearly 9 + months from onset of symptoms → surgery



**Depends on who you ask!**

# An Evidence Based Solution

The aim of this project was to utilize nurse practitioners (NPs) to facilitate patient triage in an outpatient neurosurgical practice to expedite patient's right to access to care, and ultimately improve on patient satisfaction, outcomes, and healthcare expenditure.



NPs deliver high, quality, similar patient outcomes and patient satisfaction scores when NPs and MDs were compared.

Stanik-Hutt et al. (2013)





## Making the “Triple Aim” Possible

**“NPs offer accurate and earlier assessment, thus facilitating a timelier diagnosis and management plan”**



Sarro et al. (2010).



# Large Midwest Neurosurgery Private Practice

- Current practice involves utilization of telehealth triage intake practice
- First available provider appointment times range from  
5 - 130 days
  - Patients wait longer to see preferred provider
- Expedited appointment taking up to 40 days to schedule
- Only 22% sent for conservative management prior to appointment

**First Available  
103 days**

**2nd Available  
105 days**

**3rd Available  
110 days**

Physician	First Available 103 days	2nd Available 105 days	3rd Available 110 days	Avail.		
	8	11/09/2015	10	11/11/2015	10	11/11/2015
	5	11/08/2015	5	11/06/2015	5	11/08/2015
	5	11/06/2015	5	11/06/2015	8	11/09/2015
	11	11/12/2015	11	11/12/2015	11	11/12/2015
	8	11/09/2015	8	11/09/2015	8	11/09/2015
	4	11/06/2015	9	11/10/2015	9	11/10/2015
	16	11/19/2015	32	12/03/2015	32	12/03/2015
	78	01/18/2016	78	01/18/2016	78	01/18/2016
	103	01/12/2016	105	02/15/2016	110	02/19/2016
	33	12/04/2015	33	12/04/2015	53	12/04/2015
	4	11/05/2015	10	11/11/2015	10	11/11/2015
	37	12/08/2015	39	12/10/2015	39	12/10/2015
	15	11/17/2015	19	11/19/2015	19	11/19/2015
	19	11/20/2015	19	11/20/2015	19	11/20/2015
	17	11/18/2015	17	11/18/2015	17	11/18/2015
	8	11/09/2015	8	11/09/2015	10	11/11/2015
	16	11/17/2015	16	11/17/2015	18	11/19/2015
	4	11/5/2015	4	11/5/2015	11	11/12/2015
	40	12/11/2015	40	12/11/2015	40	12/11/2015
	35	12/07/2015	39	12/09/2015	38	12/09/2015
	68	01/08/2016	75	01/15/2016	75	01/15/2016
	51	12/22/2015	65	01/05/2016	65	01/05/2016
	69	01/08/2016	69	01/08/2016	68	01/08/2016
	67	01/07/2016	67	01/07/2016	67	01/07/2016
	67	01/07/2016	67	01/07/2016	67	01/07/2016
	59	12/30/2015	65	01/05/2016	66	01/06/2016
	11	11/12/2015	11	11/12/2015	17	11/18/2015
	11	11/12/2015	37	12/06/2015	37	12/06/2015
	8	11/09/2015	9	11/10/2015	9	11/10/2015
	47	12/18/2015	47	12/18/2015	47	12/18/2015
	19	11/20/2015	33	12/04/2015	47	12/18/2015
	8	11/09/2015	12	11/13/2015	12	11/13/2015
	68	01/06/2016	66	01/06/2016	66	01/06/2016
	71	01/11/2016	71	01/11/2016	71	01/11/2016
	12	11/13/2015	18	11/19/2015	32	12/03/2015
	18	11/19/2015	18	11/19/2015	18	11/19/2015
	5	11/06/2015	5	11/06/2015	5	11/06/2015
	39	12/10/2015	39	12/10/2015	39	12/10/2015
	5	11/06/2015	9	11/10/2015	9	11/10/2015
	3	11/04/2015	10	11/11/2015	10	11/11/2015
	32	12/03/2015	32	12/03/2015	32	12/03/2015

1st Reviews			2nd Reviews			Percentage of Pts. Receiving Surgeon Appts. [[C+F]/B)
Surgeon Reviews	Surgeon Appts.	Appt. Pct.	Surgeon Reviews	Surgeon Appts.	Appt. Pct.	
274	195	71.2%	75	48	64.0%	88.7%
57	42	73.7%	9	7	77.8%	86.0%
289	168	58.1%	59	31	44.9%	68.9%
608	278	45.7%	171	94	55.0%	61.2%
833	324	38.9%	298	163	54.7%	58.5%
113	52	46.0%	31	14	45.2%	58.4%
272	97	35.7%	101	47	46.5%	52.9%
997	341	34.2%	407	182	44.7%	52.5%
440	118	26.8%	194	69	35.6%	42.5%
680	171	25.1%	297	109	36.7%	41.2%
276	70	25.4%	109	42	38.5%	40.6%
781	197	25.2%	228	61	26.8%	33.0%
		36.5%			43.6%	52.0%

# Referring Providers



## Methods

2 APRNs review same 100 patient cases in “test” database; in 1 month timeframe, while surgeons simultaneously review the same cases in the “live” database.

Future Goals:

- 1. Review by APRNs with 24hr turnaround**
- 2. NP-Led Spinal Clinic**

# Results

	<b>Impression MATCH</b>	<b>Disposition MATCH</b>	<b>Diagnostic Testing MATCH</b>	<b>Treatment MATCH</b>	<b>Appt? MATCH</b>	<b>Appt Type MATCH</b>	<b>Appt When? MATCH</b>	<b>Overall Match per patient</b>
<b>Surgeon 1</b>	100%	95%	83.0%	81.0%	91.0%	81.3%	84.0%	<b>87.0%</b>
<b>Surgeon 2</b>	100%	97%	82.6%	82.0%	94.0%	81.3%	78.0%	<b>89.6%</b>
<b>TOTALS</b>	<b>100%</b>	<b>96%</b>	<b>82.8%</b>	<b>81.5%</b>	<b>92.5%</b>	<b>81.3%</b>	<b>81.0%</b>	<b>88.3%</b>

# Appointment and Surgical Referral

Sensitivity	
Surgeons / APRN 1	100%
Surgeons / APRN 2	91.4%

NP1 (95% CI 94.8% -100%)

NP2 (95% CI 82.3% -96.8%)

# Appointment and Surgical Referral

## Specificity

<b>Surgeons / APRN 1</b>	<b>61.3%</b>
<b>Surgeons / APRN 2</b>	<b>86.7%</b>

NP1 (95% CI 42.2% -78.2%)

NP2 (95% CI 69.3% -96.2%)

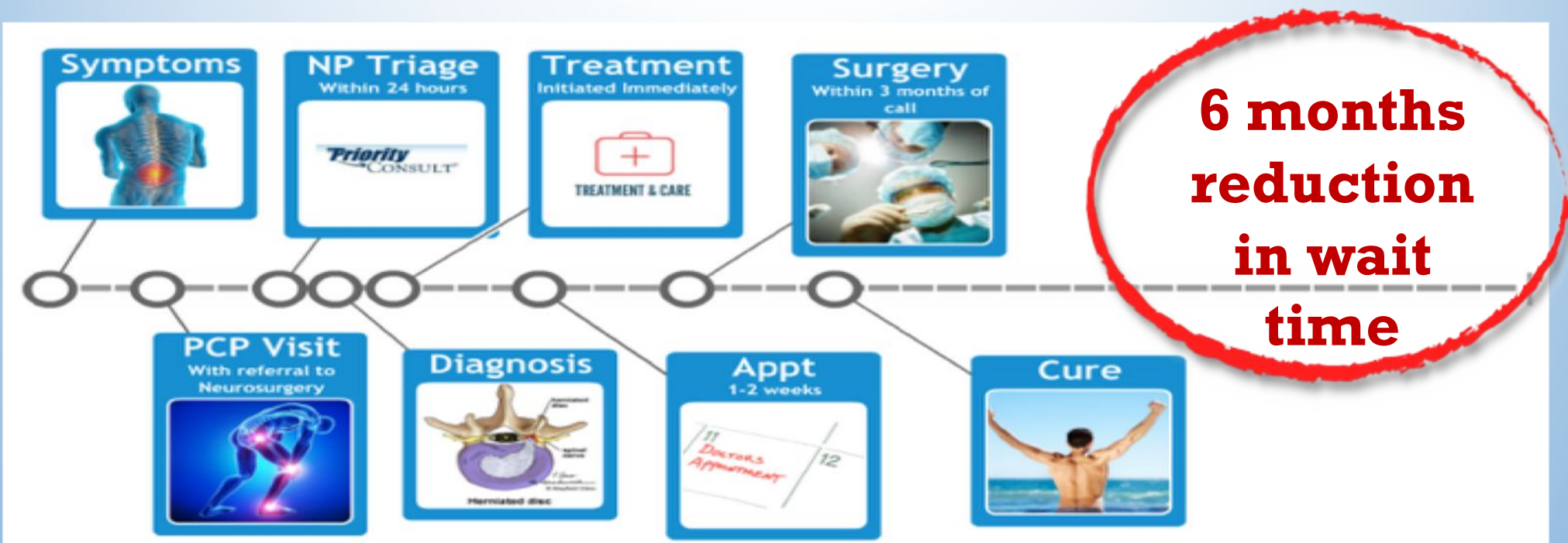


# Diagnosis

## Congruency Statistic

<b>Surgeons / APRN1</b>	<b>100%</b>
<b>Surgeons / APRN 2</b>	<b>100%</b>

# Facilitating Patient Diagnosis, Treatment, and Cure



Appointment within 2 weeks, diagnosis and treatment started within 24 hours; and surgery within 3 months

# Next Steps

- NP-Led Outpatient Spinal Clinic
- 4-5 APRNs see patients in outpatient clinic, within 2 weeks of phone call for appointment
- Approved by Board of Directors and in the implementation process
  - Increase APRNs in practice by 2022 up to 20+.

ASK A NURSE  
PRACTITIONER

# Projections

- Start with 4-5 APRNs in clinic seeing 10-12 new patients a day
- Decrease wait time to under 2 weeks for all patients – expand access
- See urgent patients faster
  - Make surgical referrals on a timelier basis
- Leverage surgeon time
- Improve patient satisfaction
- Improve outcomes
- Reduce healthcare cost



# Going the Extra Mile...

- Didactic and practical learning experiences
- Interprofessional training
  - PT, Radiology, Physical Medicine and Rehabilitation
- APRN Mentors



# **Sustainability**

- Scalable process that can be replicated globally in this healthcare specialty
- Less missed work days and disability
- Added cost of additional NPs will pay for themselves in billable visits with patients

## The Bottom Line.....

- 10,012 New Patients in 2015
- 22,690 Total Patients seen in 2015
- Cost of New Pt. Visit \$225.00 on average
- 6,110 Surgeries in 2015

3 NPs can see 12 New patients a day

36 patients/day x 5 days/week = 180 patients  
180 patients x 50 weeks =  
9000 patients/year

Cost of visit \$225.00 x 85% = \$191.25  
\$191.25 x 9000 = **\$1,721,250**



NP Salary = \$120,000

\$120,000 x 3 NPs = \$360,000 total

Leaving **\$1,361,250**  
for revenue and expenses

# Post Clinic Implementation

- Pre and post patient satisfaction survey
- Data collection at 3, 6, 12, and 24 month periods on patient appointment wait times
- Assess wait time from signing consent to actual surgery
- Assess APRN satisfaction
- Review billable visits
- Revenue review





## Win-Win

- APRNs are a valuable resource in making sure patients are seen efficiently
- APRNs have high quality outcomes
- Improve patient satisfaction and patient care
- **APRNs are a "must have" in a successful Neurosurgical practice!**

Thank You

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