



American Heart Association | American Stroke Association®

life is why™

STROKE COORDINATOR

❖

RETURN ON INVESTMENT

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American Heart Association | American Stroke Association®

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DISCLOSURES

- Principal, Lombardi Hill Consulting Group
- Member, Gerson Lehman Healthcare Council
- Subject Matter Expert, ICF International
- Independent Contractor, American Heart Association/American Stroke Association



BACKGROUND

WHAT WE KNOW

STROKE COORDINATOR ROLE

- Primary Stroke Center (PSC) development spurred the creation of the "stroke coordinator" role in hospitals
- Myriad "stroke coordinator" models exist:
 - Stroke data management/measure performance
 - Stroke program management and oversight
 - Standards compliance
 - Education and outreach
 - Facilitation of stroke patient care
- Hospitals struggle to determine the best approach to stroke center development and expansion
- The cost of dedicated resources is often at the root of debate on how to best deliver stroke care



STROKE CONTINUUM OF CARE

AWARENESS/ PREVENTION TRIAGE/ REFERRAL

INTAKE

TREATMENT

FOLLOW-UP

CHRONIC CARE /OUTCOMES

- EMS
- Non-Stroke Center Hospital

Acute

- Marketing
- Education
- Consumer Health Provider
- Screening

Community Outreach

- Primary Care -Imaging/ Diagnostic
- Primary Prevention
- Behavioral

Non-acute

- Stroke Ready ED
- 24/7 CT Imaging

Acute Stroke Ready

- Advanced Imaging
- Surgeon w/in 2 hrs
- Critical Care
- Stroke Unit

Primary Stroke Center

- Comprehensive Neuro-imaging
- Surgeon w/in 30 min
- 24/7 Endovascular Care
- Neuro Critical Care
- APNs

Comprehensive Stroke Center

- Primary Prevention
- Medical Management
- IV rt-PA
- Pain Control
- Palliative Care

Medical

- IA rt-PA
- Clot Removal
- Carotid/Cerebral Stent
- Aneurysm Coil
- AVM Repair

Endovascular

- Craniotomy and Evacuation
- Aneurysm Clipping
- AVM Repair
- Carotid Endarterectomy
- PFO Closure

Surgical

- 24-hour medical care
- Intensive physical, occupational, speech therapy
- Neuropsychology

IP Rehabilitation

- Activities of Daily Living
- Strengthening/ Coordination
- Speech/Language

OP Rehabilitation

- Physical/occupational/ speech therapy

SNF

- Physical/occupational/ speech therapy

Home Health

- Stroke Clinic
- Primary Care
- Imaging/Diagnostics

Clinic/ Diagnostics

- Group Support
- Personal Support
- Survivorship Services
- Hospice Care
- Skilled Nursing Care

Supportive Services

- Functional Assessment
- Psychosocial Assessment
- Risk Factor Control
- Readmissions
- Recurrence

Outcomes

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PURPOSE

STROKE COORDINATOR ROLE

- To compare four different “stroke coordinator” models applicable to Primary and Comprehensive Stroke Centers
- To identify revenue streams and cost efficiencies needed to rationalize the direct cost incurred for each model
 - Incremental inpatient stroke-related volume
 - Inpatient length-of-stay improvements



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ROLE ASSUMPTION

STROKE COORDINATOR ROLE

- Primary responsibilities include:
 - Stroke measure data coordination
 - Stroke Center standards compliance
 - Staff education and community outreach
 - Interdisciplinary team facilitation
 - Varying degrees of direct patient care



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4 MODELS

STROKE COORDINATOR ROLE

- **Shared** Position/**Partial** Coverage
(M-F, 8 hrs/day)
- **Dedicated** Position/**Partial** Coverage
(M-F, 8 hrs/day)
- **Shared** Position/**Full** Coverage
(24/7/365)
- **Dedicated** Position/**Full** Coverage
(24/7/365)



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4 MODELS

Shared Position/Partial Coverage

8 hrs/day, 5 days/week

No Direct Patient Care Responsibilities

0.5 FTE¹
for stroke

Dedicated Position/Partial Coverage

8 hrs/day, 5 days/week

No Direct Patient Care Responsibilities

1.0 FTE

Shared Position/Full Coverage

24 hrs/day, 7 days/week, 365 days/year

Direct Patient Care Responsibilities

2.1 FTEs
for stroke

Dedicated Position/Full Coverage

24 hrs/day, 7 days/week, 365 days/year

Direct Patient Care Responsibilities

4.2 FTEs

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“TALK THE TALK”

EXECUTIVES / “THE C-SUITE”

- **Pro forma**
 - A projection of what might be
- **New, Incremental Volume**
 - Volume over and above what you have
- Revenue
 - Total amounts charged on patient bills
- Net Revenue
 - Total amounts collected
- **Direct Cost**
 - Generally, costs that vary with volume
- **Contribution Margin**
 - Amount collected minus “direct costs”
- Fixed costs
 - Costs that don’t fluctuate with volume
- Operating Margin
 - Net revenue minus all operating expenses
- **Return on Investment (ROI)**
 - What is gained on the investment made, i.e., in a program



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FORMULATE ASSUMPTIONS

HISTORICAL EXPERIENCE

- Baseline volume
- Mix of current cases
 - Ischemic stroke
 - Hemorrhagic stroke
 - TIA
 - Endovascular procedures
 - Neurovascular surgery
- Payer mix
- Contribution margin
- Average length-of-stay
- Care needs



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FORMULATE ASSUMPTIONS

THE OPPORTUNITY

- Generate new volume
- Community need
- Regional need
- Clinical developments that will result in increased demand
- Increasing competition
- Improve efficiency/throughput
- Improve outcomes/measures



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METHODS

ASSUMPTIONS DEFINED

- Estimates:
 - Direct costs
 - Recruitment
 - Salaries and benefits
 - Equipment
 - Support staff, etc
 - Payer mix
 - Payment/Contribution Margin
 - Volume Growth:
 - Stroke/TIA
 - MS-DRGs: 61-72
 - Endovascular/Neurovascular Surgery
 - MS-DRGs 21-27
 - Cost-per-inpatient day



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FINANCIAL ASSUMPTIONS

STROKE COORDINATOR(S)

- Salary and Benefits

Type	Status	Hourly Rate	Annual Salary	Benefits (25%)	Total
RN/BSN	Full-Time	\$31.00	\$64,480	\$16,120	\$80,600
ARNP	Full-Time	\$43.64	\$90,771	\$22,693	\$113,464
Assistant	Full-Time	\$17.00	\$35,360	\$8,840	\$44,200

- FTE Cost

	FTEs	Year 1	Year 2	Year 3	Total
Shared Position/Partial Coverage					
RN/BSN	0.5	\$61,350	\$52,891	\$54,477	\$168,718
ARNP	0.5	\$77,782	\$69,815	\$71,910	\$219,507
Dedicated FTE/Partial Coverage					
RN/BSN	1.0	\$112,700	\$105,781	\$108,954	\$327,435
ARNP	1.0	\$145,564	\$139,631	\$143,820	\$429,015
Shared FTEs/Full Coverage					
RN/BSN	2.1	\$190,310	\$185,719	\$191,291	\$567,320
ARNP	2.1	\$259,324	\$256,804	\$264,508	\$780,637
Dedicated FTEs/Full Coverage					
RN/BSN	4.2	\$370,620	\$371,439	\$382,582	\$1,124,640
ARNP	4.2	\$508,649	\$513,608	\$529,017	\$1,551,274

Year 1 includes one-time expenses such as recruitment expenses: relocation, equipment, etc.



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FINANCIAL ASSUMPTIONS

OTHER

- Payer Mix
 - 65% Medicare
 - 5% Medicaid
 - 25% Managed Care/Commercial
 - 4% Self Pay
 - 2% Other
- Contribution Margin and Direct Cost/Day
 - Stroke/TIA
 - Contribution Margin \$ 3,092/case¹
 - Direct Cost \$ 1,102 per day¹
 - Baseline ALOS¹ 5.5 days
 - Endovascular/Neurovascular Surgery
 - Contribution Margin \$ 12,729/case¹
 - Direct Cost \$ 2,000² per day¹
 - Baseline ALOS¹ 10.0 days



¹ Source: NeuStrategy, Inc. proprietary database

² Direct costs are loaded at the beginning of the stay; reductions in LOS occur during the less costly portion of the stay; \$1,102 used for both Stroke/TIA and Endov/Neuro Surg

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SCENARIOS

“BOOK-ENDS”

- **Primary Stroke Center (PSC)**
 - Conservative Scenario
 - 3 Year Growth Target – 5.8% - CAGR¹
 - ALOS Target - 5.5 to 4.5 days
 - Aggressive Scenario
 - Telestroke Hub
 - 3 Year Growth Target – 10.8% - CAGR¹
 - ALOS Target - 5.5 to 4.5 days



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SCENARIOS

“BOOK-ENDS”

- **Comprehensive Stroke Center (CSC)**
 - Conservative Scenario
 - Growth Target – 5.8% - CAGR¹
 - ALOS Target – 5.5 to 4.5 days Med
ALOS Target - 10.0 to 8.5 days Endo/Surg
 - Med to Endo/Surg Ratio Target-10% to 12%
 - Aggressive Scenario
 - Telestroke Hub
 - Growth Target – 10.8% - CAGR¹
 - ALOS Target – 5.5 to 4.5 days Med
ALOS Target - 10.0 to 8.5 days Endo/Surg
 - Med to Endo/Surg Ratio Target-10% to 20%

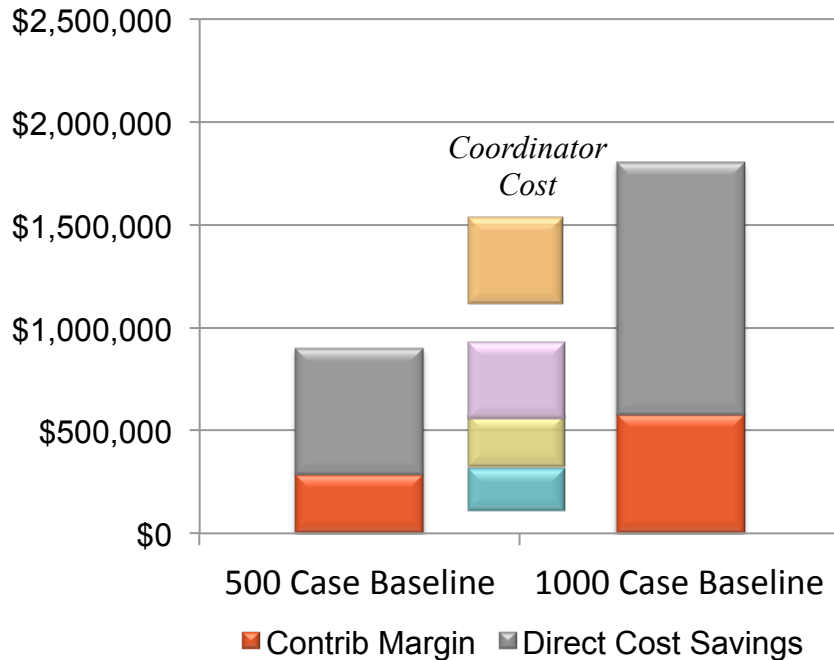


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PSC – Conservative Scenario

3 Year Growth Target – **5.8% - CAGR¹**

ALOS Target - **5.5 to 4.5 days**

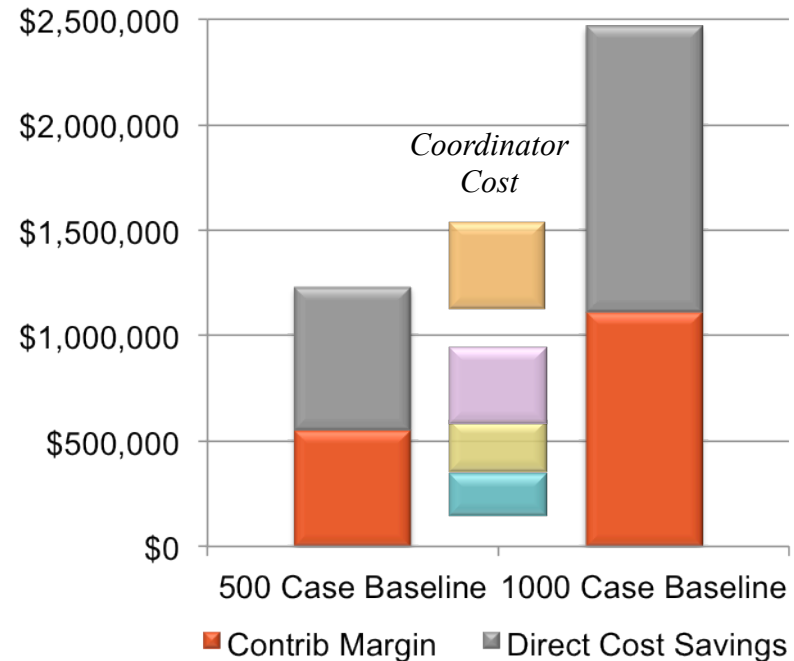


PSC – Aggressive Scenario

Telestroke Hub

3 Year Growth Target – **10.8% - CAGR¹**

ALOS Target - **5.5 to 4.5 days**



¹Compounded Annual Growth Rate (CAGR)

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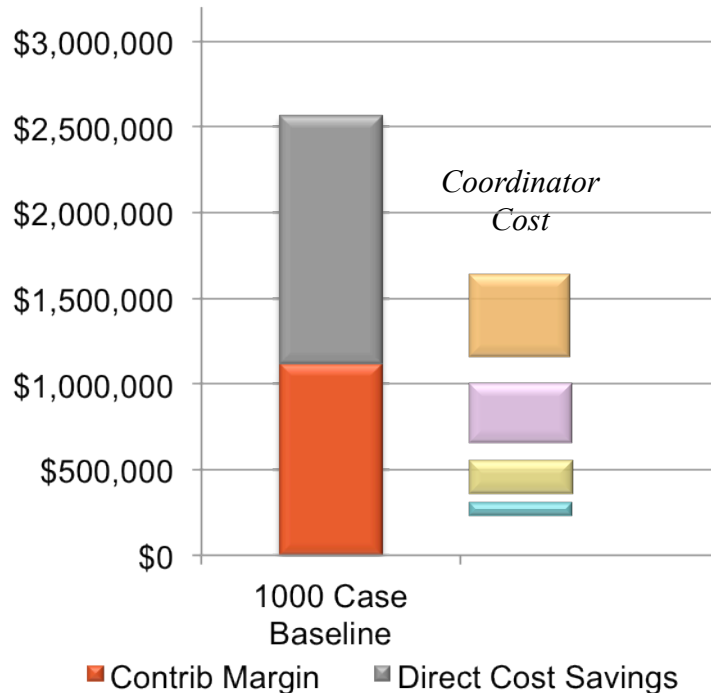
CSC – Conservative Scenario

Growth Target – **5.8% - CAGR¹**

ALOS Target – **5.5 to 4.5 days Med**

ALOS Target - **10.0 to 8.5 days Endo/Surg**

Med to Endo/Surg Ratio Target - **10% to 12%**



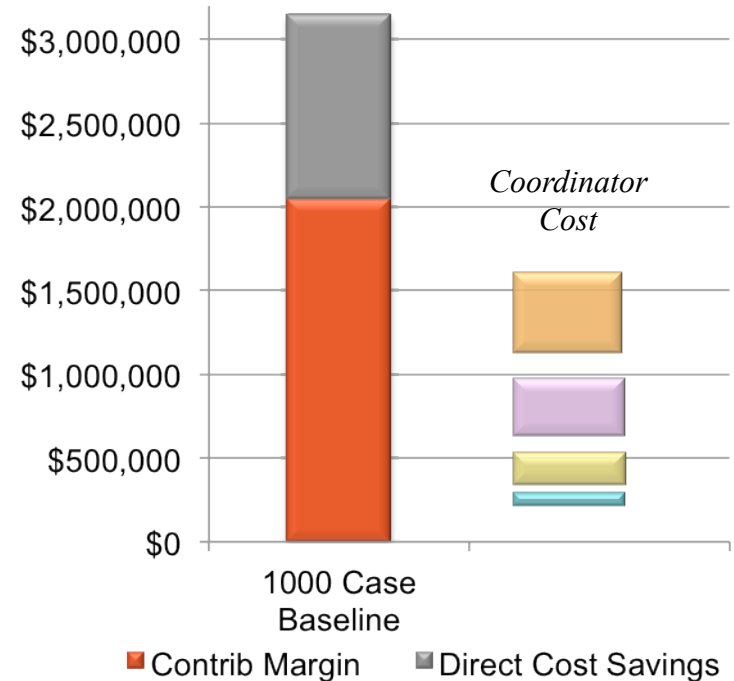
CSC – Aggressive Scenario

Telestroke Hub

Growth Target – **10.8% - CAGR¹**

ALOS Target – **5.5 to 4.5 days Med**

ALOS Target - **10.0 to 8.5 days Endo/Surg**
Med to Endo/Surg Ratio Target - **10% to 20%**



¹Compounded Annual Growth Rate (CAGR)

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WHAT TO KNOW

STROKE COORDINATOR ROI

- Learn about your own organization
 - What is your program's contribution margin for stroke cases?
 - How is ROI measured/defined in your organization?
 - What is your organization's "cost per day" that would be used to illustrate cost savings if reductions in length-of-stay were achieved?
 - What is your current payer mix for stroke patients and will it change?
- Be able to articulate how added resources can/will generate new volume



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OTHER ROI OPPORTUNITIES

STROKE COORDINATOR ROI

- Quality
 - Reduction in practice variation
 - Improvement in door to intervention time
 - Increase in the rate of intervention
 - Prevention of complications
 - Reduced mortality and disability
 - Reduced readmissions
 - Improved patient satisfaction
 - More informed public
- Efficiencies in care/operations
 - Complex patient care
 - Length-of-stay
 - Bed utilization
 - Timely and efficient transitions of care
 - Device standardization



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CONCLUSION

STROKE COORDINATOR ROI

- Projecting new, incremental patient volume and/or operational improvements that are achievable can help rationalize the financial return on investment of new, dedicated coordinator resources
- This type of future return should be realistic and presented in addition to the less quantifiable, yet equally important benefits associated with stroke care coordination



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“The only source
of knowledge is
experience.”

ALBERT EINSTEIN, PHYSICIST



QUESTIONS

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APPENDIX

REFERENCES

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**EXAMPLE
ONLY**

BUILDING A *PRO FORMA* VOLUME GROWTH ONLY

	Base Year	Year 1	Year 2	Year3	Year 4	Year 5	Total
VOLUME GROWTH – Incremental “new” cases							
Stroke/TIA ¹	700	70	77	78	78	78	380
Endovas Proc/Cerebr Surgery ²	55	7	17	27	30	52	133
CONTRIBUTION MARGIN – Incremental “new” cases							
Stroke/TIA ¹	\$3,092/cs ³	\$216,440	\$245,277	\$247,456	\$247,679	\$247,701	\$1,204,502
Endovas Proc/Cerebr Surgery ²	\$12,729/cs ³	\$89,103	\$95,906	\$96,778	\$96,865	\$96,874	\$475,526
		\$327,819	\$488,302	\$621,824	\$661,398	\$923,639	\$3,022,981
PROGRAM EXPENSES – New program costs							
Stroke Coordinator ³	1.0 FTE	\$90,600	\$82,615	\$84,680	\$86,797	\$88,967	\$433,660
Data Abstractor	0.5 FTE	\$22,100	\$22,652	\$23,219	\$23,799	\$24,394	\$116,165
Staff Training		\$5,000	\$2,000	\$1,000	\$1,000	\$1,000	\$10,000
Stroke Conferences		\$2,000	\$500	\$2,000	\$500	\$2,000	\$7,000
Medical Director Stipend		\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$100,000
Call Pay		\$91,250	\$91,250	\$91,250	\$91,250	\$91,250	\$456,250
Program Certification		\$8,500	\$1,500	\$8,500	\$1,500	\$8,500	\$28,500
Marketing		\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$100,000
		\$259,450	\$240,518	\$250,649	\$244,8470	\$256,112	\$1,251,575
CONTRIBUTION MARGIN GROWTH – From Base Year							
		\$68,369	\$247,785	\$371,174	\$416,551	\$667,527	\$1,771,406

¹Stroke/TIA – MS DRGs 61-71; growth rate projected at 10% per year; revenue 3% incr per year

²Endovascular/Cerebrovascular - MS DRGs 21-27; growth rate projected at 12% per year

³Includes \$10,000 in year one for recruitment, relocation, and computer/desk/phone expense