



Canadian Stroke Network  
Réseau canadien contre  
les accidents cérébrovasculaires

# Stroke Rehabilitation

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# Objectives

- 1. Understand the benefits of interdisciplinary stroke rehabilitation care**
2. Identify those elements of care felt to be crucial to success
- 3. Examine attempts to better organize stroke care in Ontario**



# The Importance of Stroke Rehab

## Strokes are Increasing

- t-PA treats anywhere from 5-10% of strokes and benefits about 1 in 7 (significant impact on 1% of all strokes)
- **Primary prevention is expensive and difficult**
- First wave of baby boomers are now 60 years old and stroke is a disease of older people
- **Demand for stroke rehab services is going to dramatically increase**

## The Need for Stroke Rehabilitation

- Once a stroke occurs specialized interdisciplinary rehab offers best opportunity for improving outcomes
- **Animal and clinical evidence (716 RCTs) have demonstrated the benefit and unravelled the “blackbox” of stroke rehabilitation**
- Evidence-based stroke rehab improves lives and good care is cost-effective

# Establishing a Stroke Strategy



Ontario  
**Stroke** System  
*Fewer strokes. Better outcomes.*

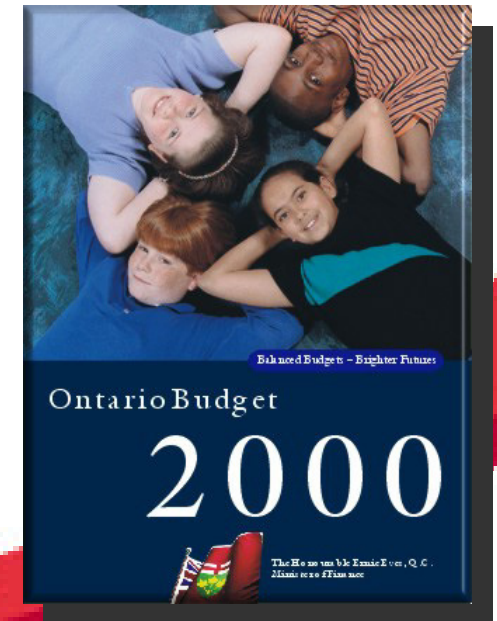
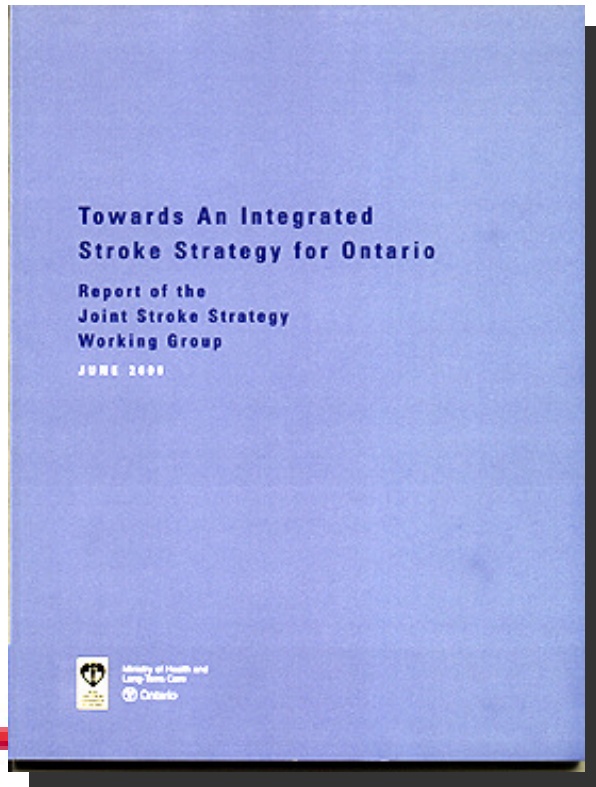


## Province of Ontario

- Largest of Canada's 10 provinces
- 13 million people (40% of Canada's population)
- Universal health care (OHIP) which is a provincial responsibility
- 6 medical schools, 5 therapy schools
- Care delivered within 14 regions (LIHNs)
- Concern about our aging population

# Development of the Ontario Stroke Strategy

- 2000 Ontario Ministry of Health and Long-Term Care established support for OSS



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# Ontario Stroke System

**The purpose was to ensure that all Ontarians had access to appropriate, quality stroke care in a timely manner**

**4 driving principles of OSS were: 1) Comprehensiveness; 2) Integration; 3) Evidence-based; 4) Province-wide**

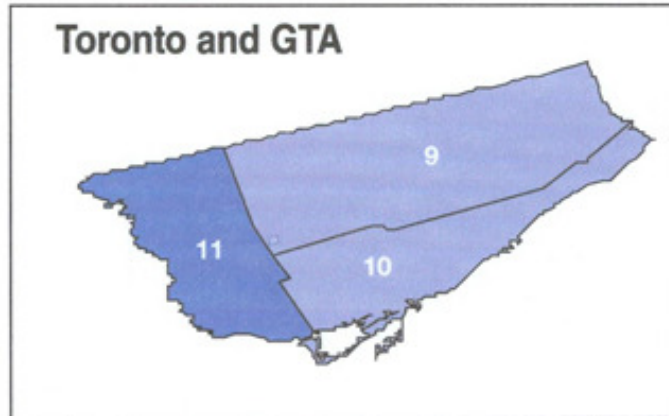
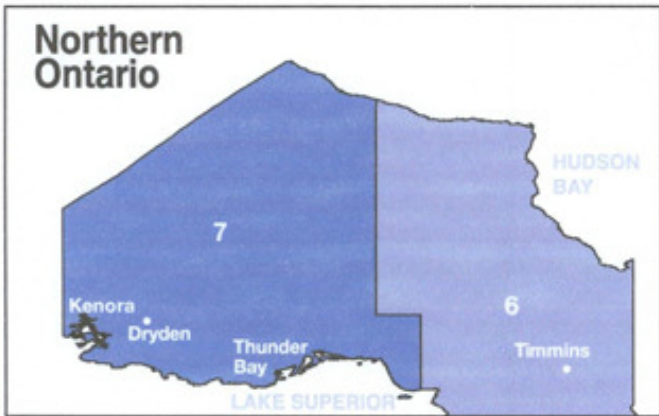
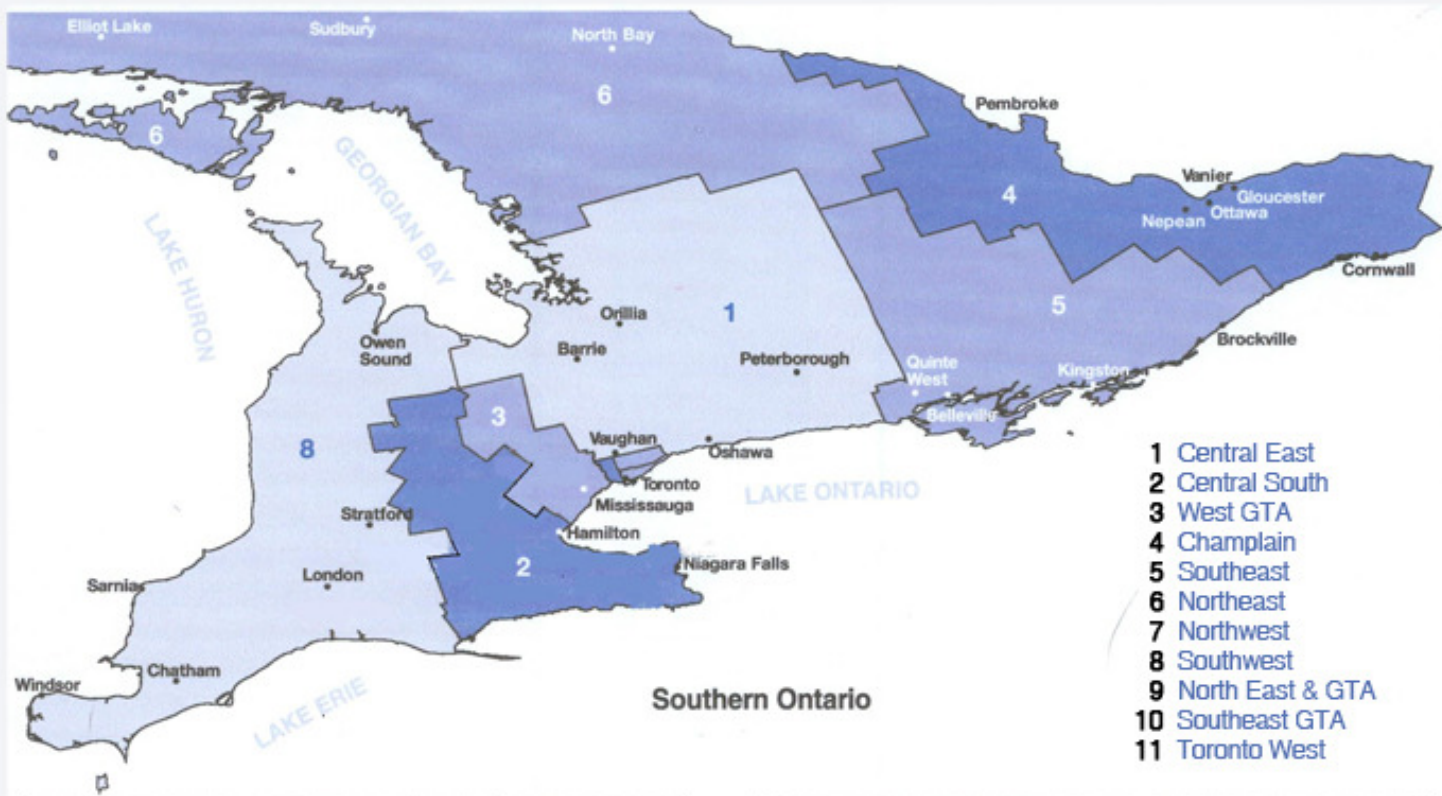
**Goal to coordinate care across the continuum ranging from primary prevention through to community reintegration**

**Invested \$30 million per annum of new funding**

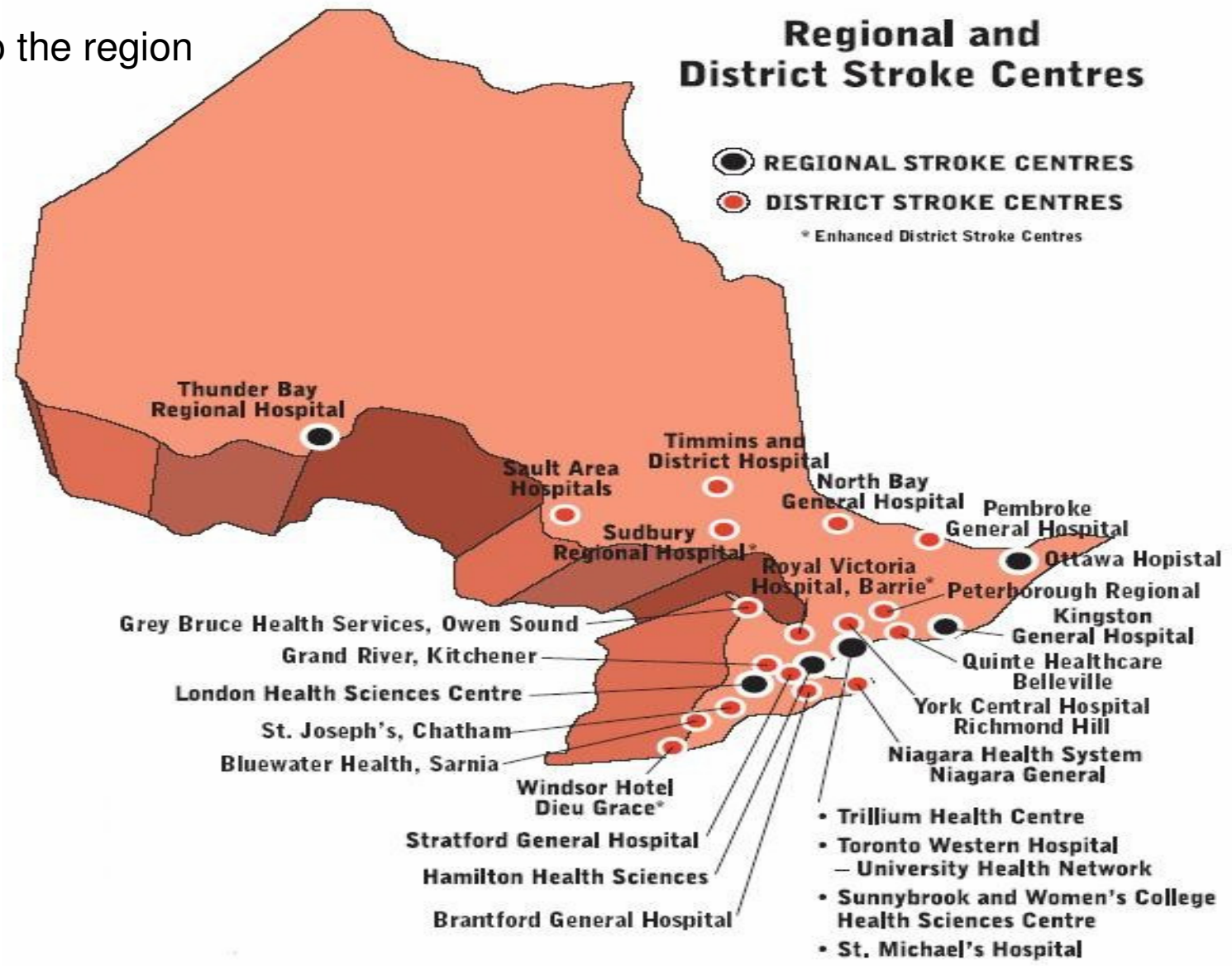
# Establishing a Stroke Strategy: Regionalization (single payer)



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Province was divided into regions with Regional Stroke Centers which provided organization and structure across the continuum to the region

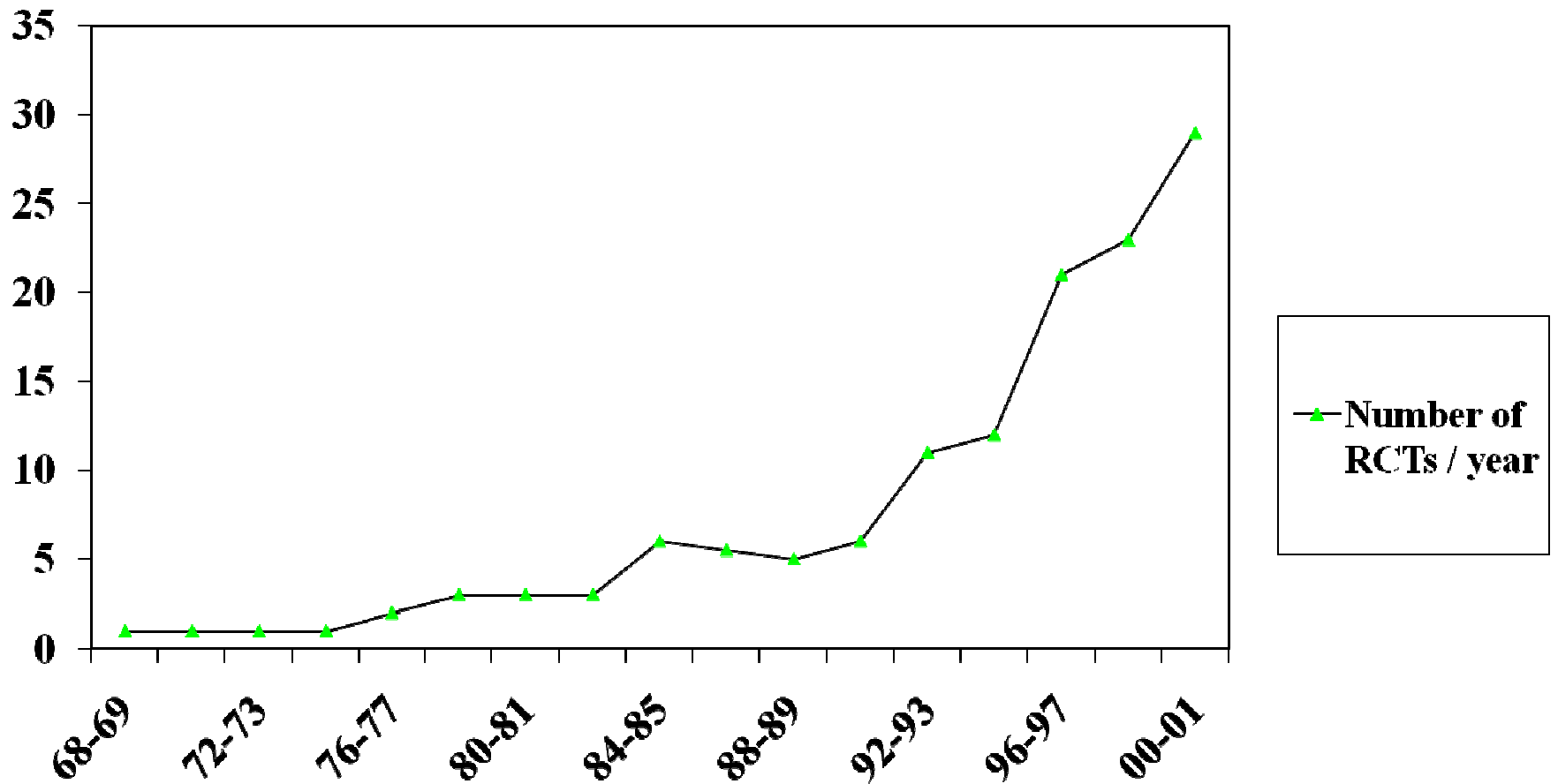


# Establishing a Stroke Strategy: Ensuring it is Evidence-Based



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# Number of Stroke Rehab RCTs per Year





# 11<sup>th</sup> Edition of SREBR

- Systematic review of literature
- **Almost 5,000 abstracts and 1,500 articles selected for careful review with a focus on treatment interventions**
- 860 RCTs directly related to stroke rehab and secondary prevention
- **Freely available at [www.ebrsr.com](http://www.ebrsr.com)**
- Designed for the busy front-line clinician



## **What Elements of Stroke Rehab Improve Outcomes?**

- 1. Specialized inter-disciplinary stroke rehabilitation units**
- 2. Rehabilitation as early as possible**
- 3. Intensive therapy environment**
- 4. Move to high level tasks early**
- 5. Well developed outpatient services**
- 6. Rehab of more severe strokes**
- 7. Increased community support systems**



# Stroke Rehab Evidence-Based Review

Foundational platform for a number of national and provincial projects focused on:

## Research Directions

Where should we focus our research efforts

## Knowledge Translation

How best to get Information to front-line users

## Standards of Care

How can we develop standards & influence policy

**Knowledge Platform: SREBR**



# Establishing a Stroke Strategy: Data Collection

## Rehab in Canada

<b>Item</b>	<b>Canada (CIHI 2003, n=1003)</b>
<b>Mean Age</b>	<b>70.8</b>
<b>Lived alone Pre-Stroke</b>	<b>24.5%</b>
<b>Mean Admission FIM</b>	<b>75.2</b>
<b>Mean/Median Stroke Onset to Rehab Admit (days)</b>	<b>26/14</b>
<b>Mean Rehab LOS (days)</b>	<b>38</b>
<b>Mean Discharge FIM</b>	<b>96.3</b>
<b>Mean Increase in FIM</b>	<b>21.1</b>
<b>FIM Efficiency (FIM gains/day)</b>	<b>0.6</b>

# OSS Rehab Trends

	2003-04	2005-06
Admission rates to inpatient rehabilitation	21%	21%
Days from stroke onset to inpatient rehab admission mean (median)	21 (13)	18 (11)
Admission FIM Score mean (median)	75 (77)	78 (80)
Change in FIM mean (median)	22 (21)	22 (21)

Provincial CIHI NRS data

# Establishing a Stroke Strategy: Providing Direction for Stroke Rehab



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# Standards of Care

## *How best to develop standards and influence policy?*

- Ontario Stroke Rehab Consensus Panel 2 (Standards of Care) and Canadian Stroke Strategy Stroke Guidelines [www.canadianstrokestrategy.ca](http://www.canadianstrokestrategy.ca)
- **National Consensus Panel to try to Standardize Outcome Measures**
- Models of Rehabilitation Care, Cost-Benefit Studies and International Comparisons



# Establishing a Stroke Strategy



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# Stroke Rehab in Ontario: Problems

1. Health Care is Political and Rehabilitation is Not Sexy
2. Lack of Accountabilities Creating Inefficient Care
3. More Limited Options
4. Provider-Driven Care

# Health Care is Political and Rehabilitation is Not Sexy

- Ontario Stroke Strategy started funding acute care (t-PA) and secondary prevention clinics
- Rehabilitation was slated for later development
- Never happened; a lot of effort has been placed into standards, guidelines, outcome measures, regional stroke programs – less than 20% spent on rehabilitation and most spent on acute stroke units – only 3% on subacute rehabilitation and 3% on community reintegration

# Inefficient Care and Lack of Accountabilities

- **Core Therapies are most sensitive to intensity: Rehab is largely a therapy delivery system**
- **< 20% of total hospital budget in subacute rehab is spent on core therapies on our best units**
- **Limited accountabilities for that time**
- **Not replaced when sick or absent**
- **A laissez-faire attitude towards rehab therapies**
- **Decimation of outpatient therapy**

# Stroke Rehab in Canada

	Canadian Stroke Rehab
<b>Admission to Rehab</b>	10-17 days post-stroke onset
<b>Intensity of Therapy</b>	PT , OT or SLP average 30 minutes per day
<b>Weekend Therapy and Statutory Holidays</b>	No therapy (sometimes weekend LOAs)
<b>Therapy Time Regulation</b>	Little or no regulation – therapists set their own times; accountabilities are often lax
<b>Rehab Length of Stay</b>	35-45 days
<b>Rehab FIM Efficiency</b>	0.6-0.8
<b>Outpatient Therapy</b>	Often wait list or not available
<b>System Designed for Who?</b>	Provider-driven care



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# The End

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