

An Assessment of
**Stroke
Rehabilitation
Services**
in Montana

2011



Introduction

Stroke is the leading cause of adult-onset disability in the United States. In recent years, therapies for acute stroke have improved, and mortality rates have decreased in the first 30 days post stroke. (1) Yet the burden of disability post stroke continues to challenge the health care system with only 25% of patients returning to the level of function comparable to that of community-matched controls who have not had a stroke. (2) Improvements in function after stroke depend in part on the nature and severity of the initial deficit. During the first few weeks after stroke, improvements reflect the recovery of neurotransmission both near the infarct and in other areas of the brain remote from the lesion. (3) Cognitive, language and motor skills can improve as the brain reorganizes functions regardless of age and time after stroke. Stroke rehabilitation can help stroke survivors return to maximum function in the community and reduce the risk of recurrent stroke.

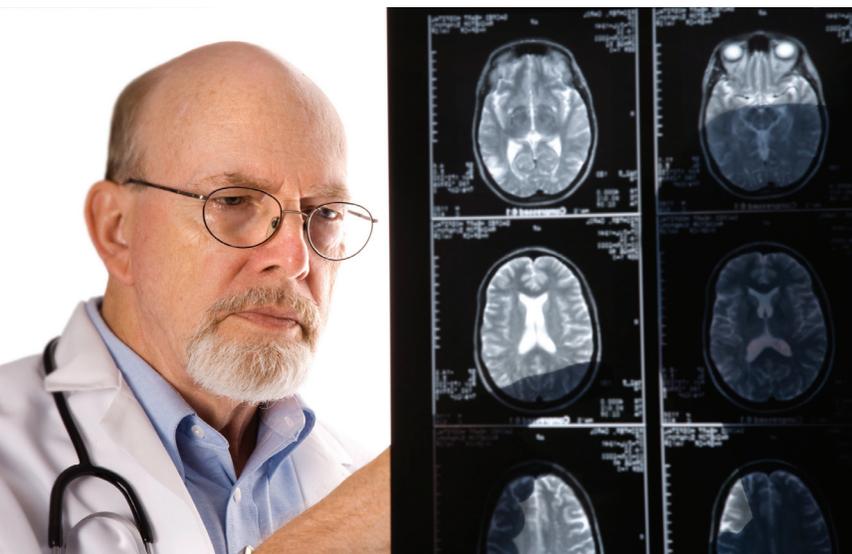
Stroke rehabilitation is a complex multidisciplinary process which includes assessment of individual patient functions and structure, activities of daily living including cognitive impairments, and personal and environmental factors unique to each individual coupled with targeted therapies. Rehabilitation services may be provided in inpatient settings, skilled nursing facilities, and/or coordinated in outpatient and home settings. Evidence supports the benefits of rehabilitation on motor function and the ability to perform activities of daily living. (4) Recently the American Heart Association (AHA) released a comprehensive interdisciplinary scientific statement detailing the best available evidence and recommendations for stroke survivors and their families in a variety of settings. (1)



The Montana Stroke Initiative (MSI) in cooperation with the Montana Cardiovascular Health (CVH) Program has worked to improve awareness of stroke signs and symptoms and the need to avoid delay in seeking treatment for acute stroke. The MSI has developed evidence-based stroke protocols and made them available to hospitals across the state, and several communities have tele-stroke capability linking outlying communities with stroke referral centers. To assess another important component of the stroke care system, the MSI designed and conducted a survey in 2010 based on the AHA Statement to assess stroke rehabilitation services in communities around the state. This report presents the responses about the availability of staff and services for comprehensive stroke rehabilitation in Montana.

Methods

The CVH Program obtained a list of Montana Critical Access Hospitals (CAH) and Long-term Care Facilities (LTCF) from the Montana Department of Public Health and Human Service (DPHHS) Quality Assurance Division (QAD) website in early 2011. From this list, all CAH (N = 46) and LTCFs (N = 87) licensed by the DPHHS-QAD were selected for this survey. Additionally, the address of one Long-term Acute Care (LTAC) facility, not listed on the website, was provided to the CVH Program by one of Montana's stroke coordinators.



In developing the stroke rehabilitation survey tool, the Stroke Workgroup in collaboration with the Montana CVH Program obtained input from participating stroke neurologists and a stroke rehabilitation specialist to expand questions from the Ohio rehabilitation survey. (6) A letter was sent to the Medical Directors of the CAHs, LTCFs and the LTAC facility to encourage their Rehabilitation Services Coordinator, usually the Directors of Nursing, to complete the survey. A second letter, with the survey tool, was sent to the Rehabilitation Services Coordinator requesting each to complete and return the survey. Both letters explained the purpose of

the survey and emphasized the importance of completing the survey. A self-addressed, stamped envelope was included in the Rehabilitation Services Coordinator's letter for their convenience in returning the completed survey. Additionally, a fax number was provided in the survey tool for those respondents interested in faxing the completed survey rather than sending it through the mail.

The survey was mailed to the Medical Directors at each CAH, LTCF and LTAC facility in early April 2011. To increase the response rate, fax reminders were sent in early May to Rehabilitation Services Coordinators who had not returned their questionnaires. As a courtesy, a copy of the survey questionnaire was attached to the fax memo. If more than one survey was submitted from a facility, the Rehabilitation Service Coordinator's submission was used in the analysis.

The survey included a list of 10 questions assessing staffing and types of settings, types and availability of services, assessments of stroke survivor's function, and barriers to providing stroke rehabilitation services (Appendix A). The CVH Program categorized stroke services into the following groups: 1) basic stroke rehabilitation services: physical therapy, occupational therapy, speech therapy and bladder/bowel function; 2) survivor support services: home evaluation and remodel, caregiver training and support, prosthetic services and nutrition counseling; 3) basic multidisciplinary team: Physical Therapist, Occupational Therapist, Social Worker and Speech and Language Therapist; 4) recurrent stroke prevention services: assessing risk of recurrent stroke, smoking status, smoking cessation including Quit Line use, hypertension, blood pressure monitoring, aspirin use, dyslipidemia and lipid lowering medication.

When responses were missing or not documented for individual questions, the analysis for that particular question was excluded. For some analyses, responding facilities were classified into one of two categories: Critical Access Hospitals or Long Term Care Facilities (this also included the one LTAC facility). Data analyses were completed using SPSS V17.0 software (SPSS Inc., Chicago, Illinois).

Results

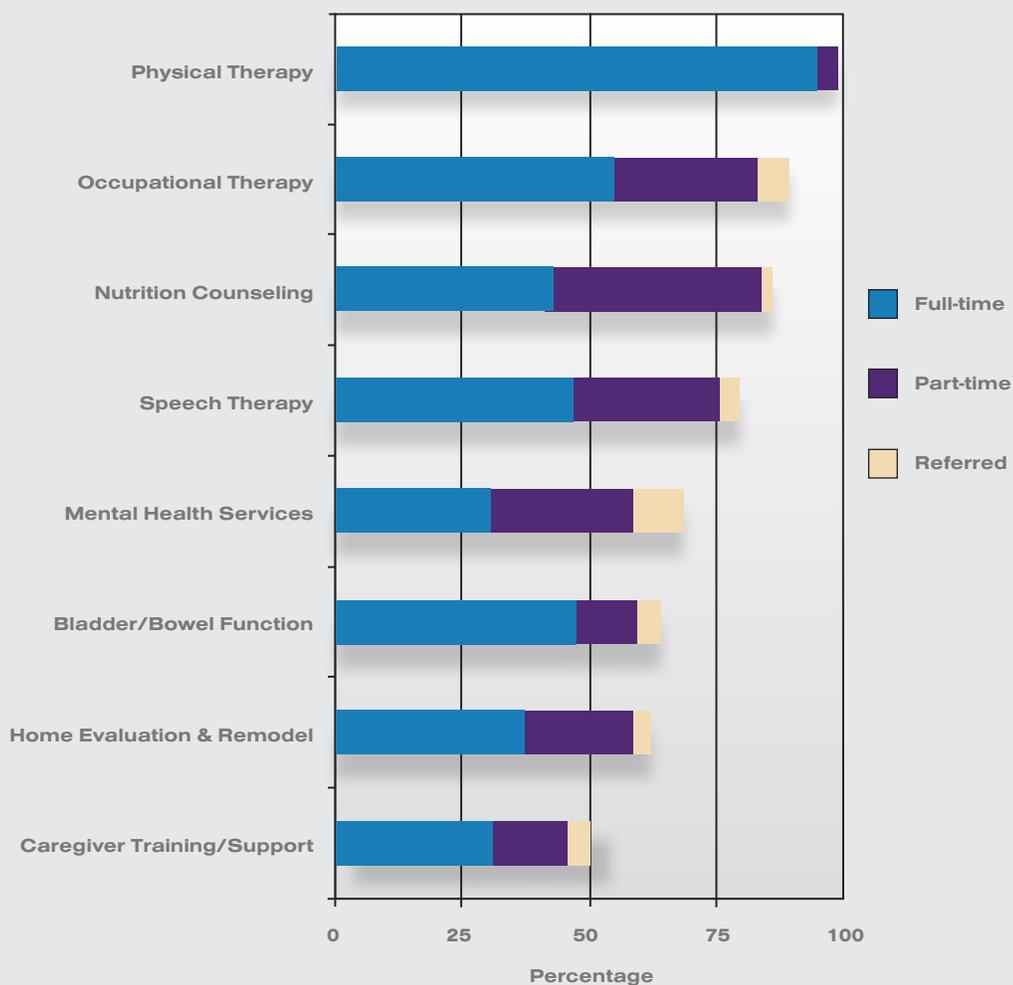
Overall

Completed surveys were received from one hundred eighteen (89%) of the 133 facilities. Ninety-three percent (108) of respondents reported that their facility or community had rehabilitation services available for stroke patients. Almost 70% of respondents with rehabilitation services available reported that services were provided in swing bed facilities, 63% reported free-standing skilled nursing facilities, 57% reported an inpatient hospital unit and less than 50% reported services were provided in home health or other settings (e.g., other outpatient rehabilitation, assisted living).

Among the 108 respondents reporting facility or community rehabilitation services, 99% reported having physical therapy services available with the majority offering these services full-time (Figure 1). Additionally, the majority of respondents also reported having occupational therapy (89%), nutrition counseling (86%) and speech therapy (80%) services for stroke survivors. However, only 50% or fewer

Figure 1.

Availability of stroke rehabilitation services among CAHs and LTCFs, by accessibility status, Montana, 2011.



reported offering these services full-time. Less commonly reported services included prosthetic services (37%), other cognitive therapy (26%), testing for driving (21%), vocational rehabilitation (20%), and stroke survivor support group (15%).

Eighty-nine percent of respondents (100/112) reported they had trained personnel available to provide rehabilitation services for stroke survivors in their facility or community. Among those reporting trained personnel, all respondents (100) reported having a physical therapist available full-time, part-time or on a contractual basis. Over 75% (76/100) of respondents reported having a trained speech or language therapist, 78% (78/100) reported social workers and 87% (87/100) reported an occupational therapist with 50% or more offering these services full-time. Less commonly, respondents reported the following trained personnel: rehabilitation nurse, recreational therapist, rehabilitation physician, neuropsychologist, and certified rehabilitation counselor.

Critical Access Hospitals

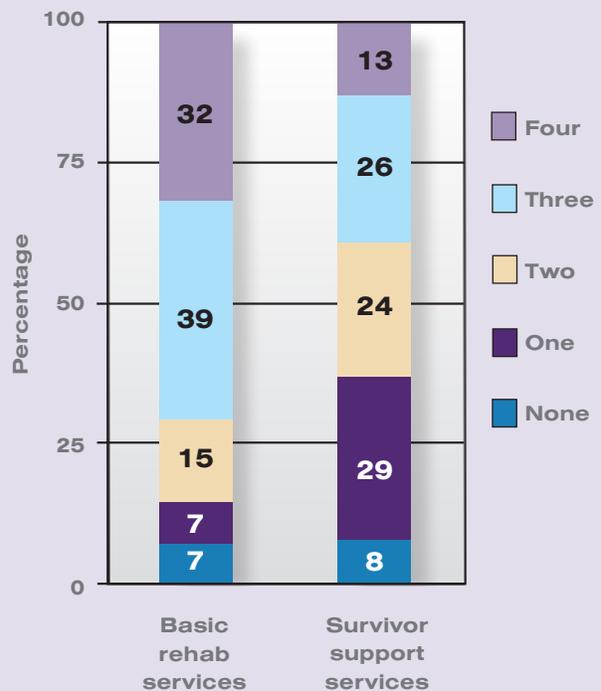
Thirty-eight out of the 41 (93%) CAH respondents reported that their facility or community had rehabilitation services available for stroke patients. Seventy-one percent reported having at least three of four basic stroke rehabilitation services (including: Physical Therapy, Occupational Therapy, Speech Therapy and Bladder/Bowel function) while, less than 10% reported having none of the basic stroke rehabilitation services (Figure 2). In addition, 39% of CAH respondents who provided rehabilitation services offered at least three of four common survivor support services to their stroke survivors, 24% reported two and about 30% reported offering one survivor support service.

Eighty-seven percent (35/40) of CAH respondents reported having at least one category of trained personnel to provide stroke rehabilitation services. Availability of four basic team members (including physical therapist, occupational therapist, social worker, and speech/language therapist) was reported by

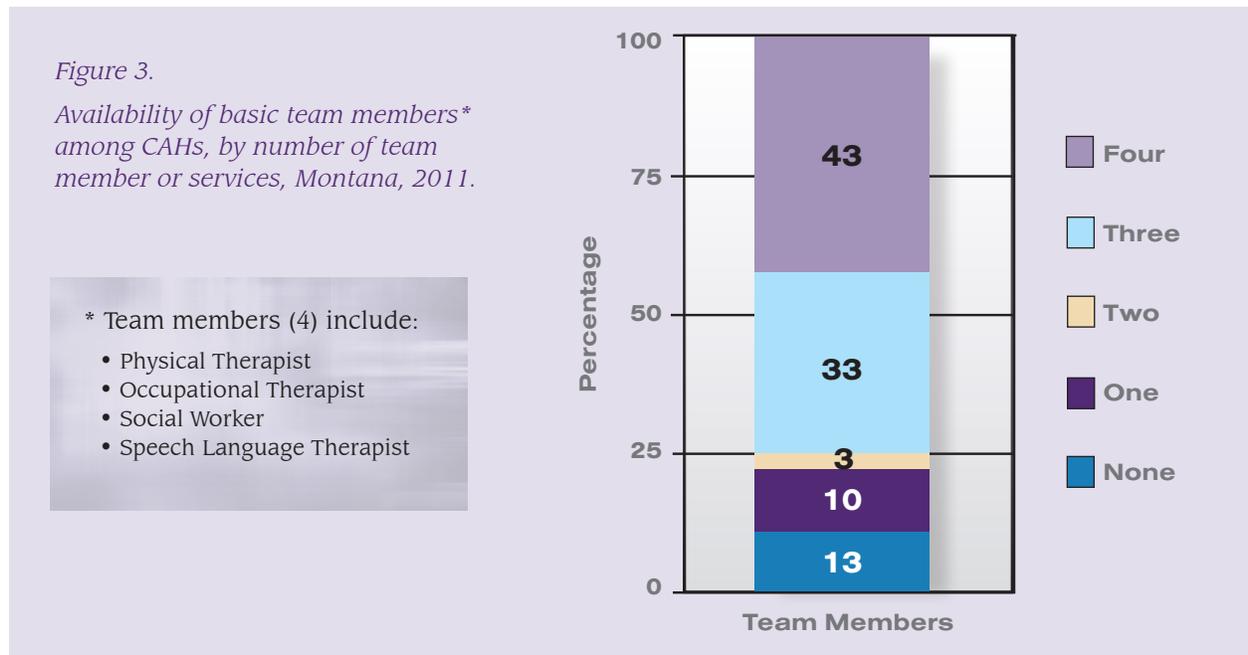
Figure 2.
Availability of basic stroke rehabilitation services and survivor support services** among Critical Access Hospitals (CAH), by number of services, Montana, 2011.*

- * Basic stroke rehab services (4) include:
 - Physical therapy
 - Occupational therapy
 - Speech therapy
 - Bladder/bowel function

- ** Survivor support services (4) include:
 - Home evaluation and remodel
 - Caregiver training and support
 - Prosthetic services
 - Nutrition counseling

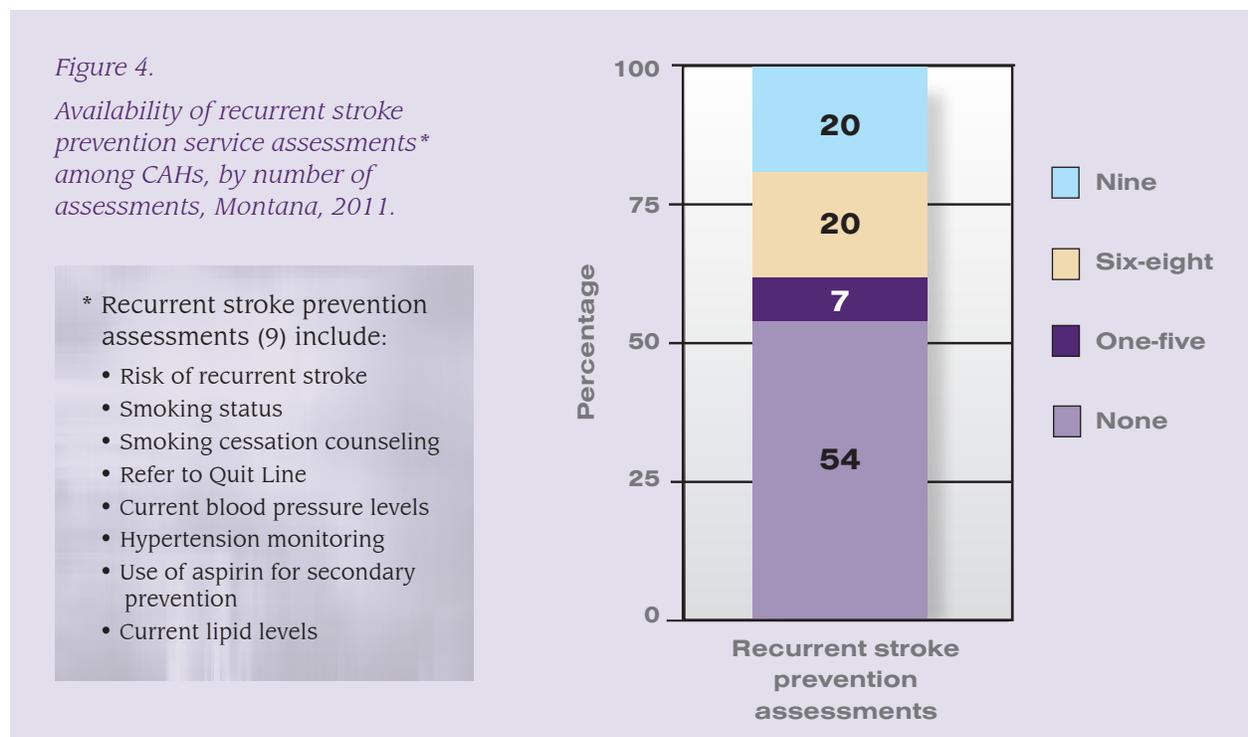


43% of CAH respondents, 33% reported three basic team members and about 25% reported less than two basic team members (Figure 3).



Only 47% (19/41) of CAH respondents reported they routinely provided formal structured assessments on each stroke patient. Ten comprehensive functional assessments (including self care, dysphagia, motor, mobility, bladder, bowel, memory, depression, speech, and cognition) were reported by only 63% (12/19) of CAH respondents that reported routinely providing any formal structured assessments. The remaining 37% (7/19) reported providing at least five functional assessments for stroke survivors.

Formal assessments for recurrent stroke prevention were not always available. Twenty percent of CAH routinely provided all nine stroke prevention assessments (Figure 4). However, 54% did not report



routinely providing any of the nine prevention service assessments such as risk of recurrent stroke, smoking status, smoking cessation, Quit Line referral, current blood pressure levels, monitored hypertension, use of aspirin for secondary prevention of stroke, current lipid levels, and use of lipid lowering medications.

Long-term Care Facilities and Long-term Acute Care

Availability of rehabilitation services for stroke patients was reported by ninety-one percent (70) of LTCF respondents either in their facility or community. Sixty-four percent of LTCF reported having all four basic stroke rehabilitation services (Figure 5) while only seven percent reported having none of the four basic stroke services available. Additionally, all four survivor support services were provided by 24% of the LTCFs, 26% provided three and almost 30% offered at least two of these services.

Figure 5.

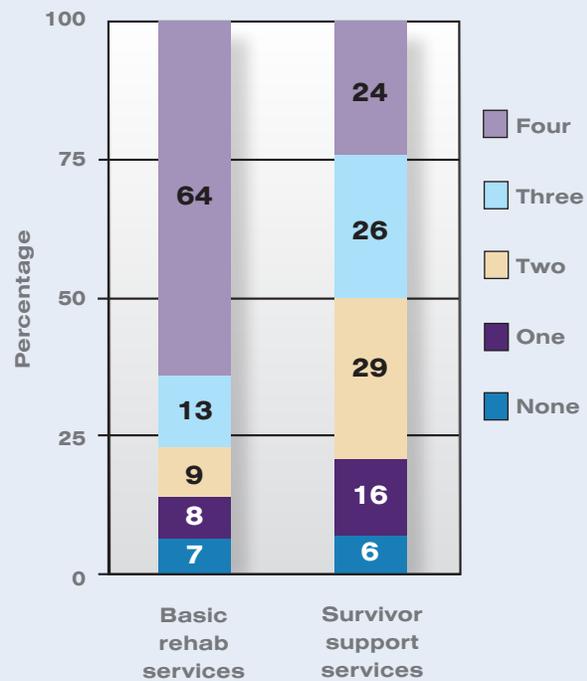
Availability of basic stroke rehabilitation services* and survivor support services** among Long-term Care Facility (LTCF), by number of services, Montana, 2011.

* Basic stroke rehab services (4) include:

- Physical therapy
- Occupational therapy
- Speech therapy
- Bladder/bowel function

** Survivor support services (4) include:

- Home evaluation and remodel
- Caregiver training and support
- Prosthetic services
- Nutrition counseling



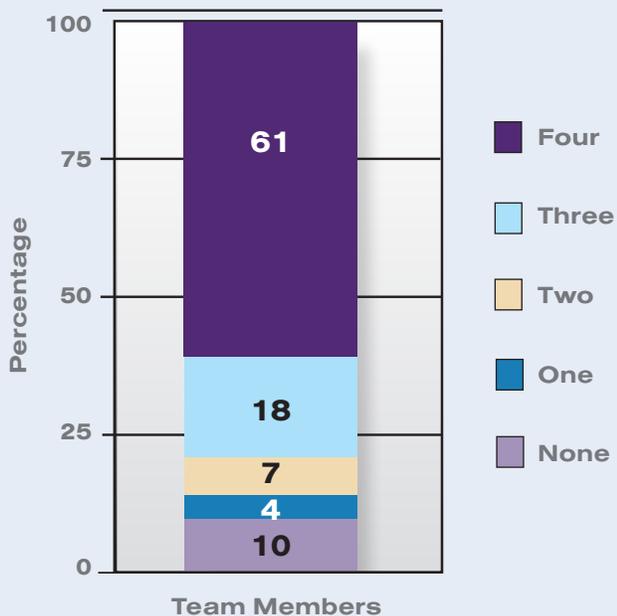
Trained personnel from at least one of the recommended categories to provide rehabilitation service to stroke patients were available in 90% (65/72) of LTCF respondents. Over 60% percent of the LTCFs, reporting at least one category of trained personnel to provide rehabilitation services for stroke patients, reported availability of all four basic team members, 18% reported three basic team members and 10% reported having none of the basic team members (Figure 6). Sixty-six percent (50/76) of LTCFs reported they routinely provided formal structured assessments on each stroke patient. Among these 50 LTCFs, 80% of reported providing all ten comprehensive functional assessments, 18% reported providing two to nine functional assessments and two percent did not routinely provide any of these nine functional assessments.

Figure 6.

Availability of basic team members* among LTCFs, by number of team member or services, Montana, 2011.

* Basic Team Members (4) include:

- Physical Therapist
- Occupational Therapist
- Social Worker
- Speech Language Therapist



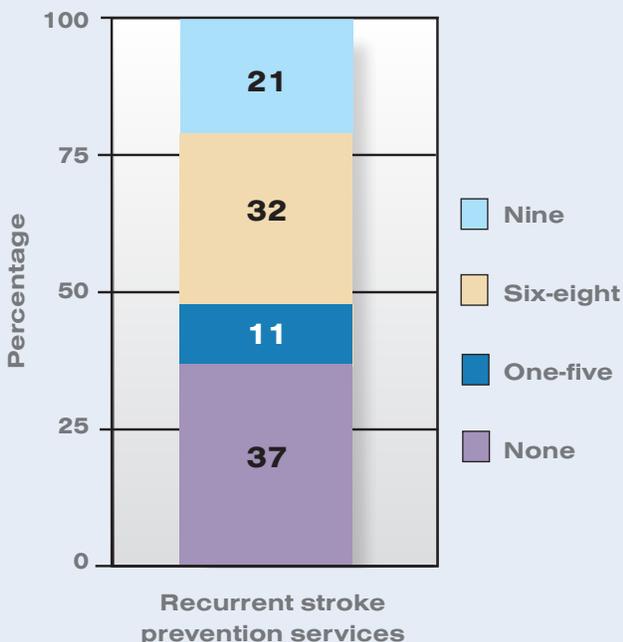
Routine formal structured assessments to prevent recurrent stroke prevention were not uniformly available. Only 21% of LTCFs reported all nine of the areas were routinely assessed; 32% routinely assessed six to eight prevention areas, and 37% did not report routinely assessing any of the nine prevention areas (Figure 7).

Figure 7.

Availability of recurrent stroke prevention services* among LTCFs, by number of services, Montana, 2011.

*Recurrent stroke prevention assessments (9) include:

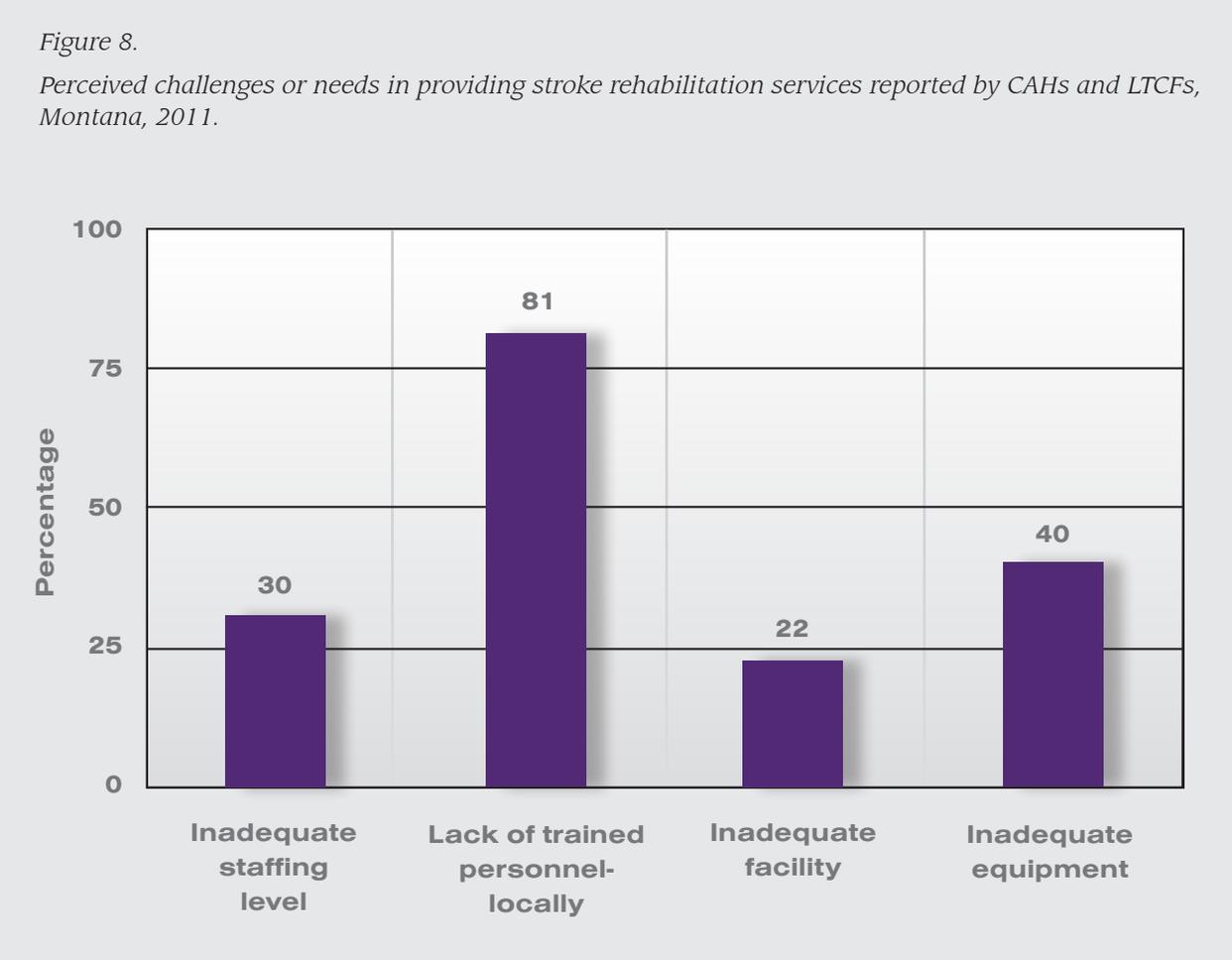
- Risk of recurrent stroke
- Smoking status
- Smoking cessation counseling
- Refer to Quit Line
- Current blood pressure levels
- Hypertension monitoring
- Use of aspirin for secondary prevention
- Current lipid levels
- Lipid lowering medication



Barriers to Providing Stroke Rehabilitation in Montana

Overall, 56% of respondents perceived challenges or needs in providing rehabilitation services to stroke patients in their community. The most commonly reported challenge or need reported was lack of locally trained personnel (81%). Inadequate equipment (40%), inadequate staffing level (30%) and inadequate facilities (22%) were reported less commonly (Figure 8).

Figure 8.
Perceived challenges or needs in providing stroke rehabilitation services reported by CAHs and LTCFs, Montana, 2011.



Summary

Overall, most surveyed facilities in Montana reported that some level of stroke rehabilitation services was available in their communities. Physical therapy and other services were available at both LTCFs and CAHs across the state. However, few LTCFs reported they did not provide routine structure assessments for assessing recurrent stroke risk and minimizing the risk as commonly as CAHs. Such facilities may rely on community physicians to provide preventive care. Access to personnel specifically trained in rehabilitation was limited, however. The most frequently cited need was training for local personnel in stroke rehabilitation. The findings from this survey can be used to facilitate referral to rehabilitation services and the development of a network to train local health care providers in state-of-the-art stroke rehabilitation evaluation methods and treatment techniques. Utilizing these data, the MSI is well positioned to explore options of providing educational opportunities as well as developing standardized assessment tools to help both LTCFs and CAH maximize their resources and improve stroke rehabilitation services in rural areas.

Contributors:

Ellen (Penny) Clifton RN, BSN¹, Dennis W. Dietrich MD², Crystelle C. Fogle MBA, MS³, Dorothy Gohdes MD³, Patti LaHaie MD¹, Mike J. McNamara MS³, Nicholas J. Okon DO⁴, Carrie S. Oser MPH³, and Daniel V. Rodriguez MD⁵.

¹ St. Vincent Healthcare, Billings, Montana; ² Benefis Healthcare, Great Falls, Montana; ³ Montana Department of Public Health and Human Services, Helena, Montana; ⁴ Billings, Montana; ⁵ Veterans Administration Medical Center, Billings, Montana.

Acknowledgements:

The Montana Cardiovascular Health Program gratefully acknowledges the contributions of the many individuals from the Critical Access Hospitals, Long-term Care Facilities, and the Long-Term Acute Care facility who graciously responded to the survey. We would also like to thank Linda Priest from Northwest Resource Consultants and the Montana Stroke Workgroup for their work on this project.

References:

1. Miller EL, Murray L, Richards L, Zorowitz RD, Bakas T, Clark P, Billinger SA on behalf of the American Heart Association Council on Cardiovascular Nursing and the Stroke Council. Comprehensive overview of nursing and interdisciplinary rehabilitation care of the stroke patient. A scientific statement from the American Heart Association. *Stroke* 2010;41:2402-48.
2. Lai S-M, Studenski S, Duncan PW, Perera S. Persisting consequences of stroke measured by the Stroke Impact Scale. *Stroke* 2002;33:1840-4.
3. Dobkin BH. Rehabilitation after stroke. *Clinical Practice. N Engl J Med* 2005;352:1677-84.
4. Langhorne P, Bernhardt J, Kwakkel G. Stroke Rehabilitation. *Lancet* 2011;377:1693-702.
5. <http://www.dphhs.mt.gov/qad/healthcarefacilitieslist/index.shtml>.
6. Hedworth A, Brikshavana D, and the Great Lakes Regional Stroke Network. *Stroke Rehabilitation in the Great Lakes Region, Chicago, IL. June 2009.*

This publication was supported through a Cooperative Agreement (U50 DP000736-05) with the Centers for Disease Control and Prevention, Division of Heart Disease and Stroke Prevention and through the Montana Department of Public Health and Human Services. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention.

0 copies of this public document were published at an estimated cost of \$0.00 per copy, for a total cost of \$0.00, which includes \$0.00 for printing and \$0.00 for distribution. The Montana Department of Public Health and Human Services attempts to provide reasonable accommodations for any known disability that may interfere with a person participating in any service, program or activity of the Department Alternative accessible formats of this document will be provided upon request. For more information, call (406) 444-5508 or TDD: 1 (800) 253-4091.

Appendix A

ASSESSMENT OF STROKE REHABILITATIVE SERVICES IN MONTANA, 2011

Staffing and Settings

1. In your facility or community, are rehabilitation services available for stroke patients?
 - a. Yes
 - b. No – Skip to Question 4
 - c. Don't know/Not sure – Skip to Question 4

2. If yes to question 1, stroke rehabilitation services are offered in which of the following settings? (Please circle all that apply)
 - a. Inpatient Hospital unit
 - b. Swing Bed/Skilled Nursing
 - c. Skilled Nursing Facility (freestanding)
 - d. Home Health
 - e. Other Outpatient Rehab
 - f. Other (please specify): _____

3. In your facility or community, what services are available for stroke survivors?

| | Available | | Offered | | |
|--------------------------------|-----------|----|-----------|-----------|----------------------------|
| | Yes | No | Full-Time | Part-time | Referred outside community |
| Physical Therapy | | | | | |
| Occupational Therapy | | | | | |
| Speech Therapy | | | | | |
| Other Cognitive Therapy | | | | | |
| Mental Health Services | | | | | |
| Caregiver Support | | | | | |
| Prosthetic Services | | | | | |
| Bladder and Bowel Function | | | | | |
| Vocational Rehab | | | | | |
| Nutrition Counseling | | | | | |
| Caregiver Training and Support | | | | | |
| Stroke Survivor Support Group | | | | | |
| Testing for Driving | | | | | |
| Home evaluation and remodel | | | | | |

4. In your facility or community, are there trained personnel available to provide rehabilitative service to stroke patients?

- a. Yes
- b. No – Skip to Question 6
- c. Don't know/Not sure - Skip to Question 6

5. If yes to question 4, please indicate the position status for each of the following trained personnel:

| | Available | | Position Status | | |
|----------------------------------|-----------|----|-----------------|-----------|-------------|
| | Yes | No | Full-Time | Part-time | Contractual |
| Certified rehab counselors | | | | | |
| Neuropsychologists | | | | | |
| Occupational therapist | | | | | |
| Rehab Nurses | | | | | |
| Physical therapist | | | | | |
| Rehab physicians | | | | | |
| Recreational therapist | | | | | |
| Social workers | | | | | |
| Speech and language therapists | | | | | |
| Other (please specify): _____ | | | | | |

Assessments of Stroke Survivors' Function

6. Do you routinely provide formal structured assessments on each stroke survivor?

- a. Yes
- b. No – Skip to Question 8
- c. Don't know/Not sure – Skip to Question 8

7. If yes to question 6, do you routinely assess the following areas?

| Function | Description | Assess | | How often | |
|--------------------------|---|--------|----|-----------|-----------|
| | | Yes | No | Always | Sometimes |
| Dysphagia | Swallow without aspiration | | | | |
| Bladder | Urinary Retention | | | | |
| Bowel | Constipation/ incontinence | | | | |
| Motor | Upper and lower extremity Range of motion (ROM)/strength | | | | |
| Mobility | Transfer from bed to chair | | | | |
| Self-care | Activities of daily living | | | | |
| Speech | Dysarthria | | | | |
| Cognition | Complex communication skills | | | | |
| Memory | Ability to store and retrieve information | | | | |
| Depression | Depressed mood | | | | |
| Risk of recurrent stroke | Stroke risk factors | | | | |
| Smoking status | Current smoker | | | | |
| Smoking cessation | Smoking cessation counseling given to smoker | | | | |
| Quit Line referral | Referred to MT Tobacco Quit Line | | | | |
| Hypertension | Current blood pressure levels | | | | |
| HTN Monitor | Monitored hypertension | | | | |
| Dyslipidemia | Current lipid status | | | | |
| Lipid lowering meds | Use of lipid lowering medications | | | | |
| Aspirin | Use of aspirin for secondary prevention of stroke | | | | |

8. Have you used a telemedicine network to provide any stroke rehab services (i.e., assessments, rehab consults, etc.) in your community?

- a. Yes
- b. No
- c. Don't know/Not sure

9. Do you perceive any challenges or needs in providing rehabilitation services to stroke patients in your community?
- a. Yes
 - b. No – Skip to end
 - c. Don't know/Not sure – Skip to end
10. If yes to question 9, what are the challenges in providing stroke rehabilitation services in your community?
- a. Inadequate staffing levels
 - b. Lack of trained personnel or specialists locally
 - c. Inadequate facility
 - d. Inadequate equipment
 - e. Other (please specify): _____

If you would be interested in receiving an electronic copy of the summary of results from the stroke rehab survey, please provide your e-mail address below.

E-mail address: _____

Thank you for completing this assessment!

Please return the completed form in the self-addressed stamped envelope or fax to 406-444-7465 by April 15, 2011, Attention Carrie Oser (coser@mt.gov), Montana Department of Public Health and Human Services, Montana Cardiovascular Health Program, Cogswell Bldg., C-314B, P.O. Box 202951, Helena, MT 59620-2951.