Population:

Geriatric patients, specifically those with history of stroke

WHY**:** As patients age, their bodies are naturally in a generalized state of decline that often results in a variety of health conditions resulting from impairments across multiple systems.1 Common areas of concern are: multiple comorbidities, cognitive impairment, frailty, disability, malnutrition, impaired homeostasis, chronic inflammation, and sarcopenia, all of which have been found to have significant impacts on QoL and survival rates of elderly populations.1,2 In addition tothe inherent health risks and state of decline that is present in aging patients, patients with a history of chronic stroke are at an increased risk of additional complications such as Deep Vein Thrombosis (DVT), Pulmonary Embolism (PE), sedentary lifestyles/physical inactivity, cognitive impairments, reduced quality of life (QoL), and mood changes such as depression.3–6 Patients with chronic stroke consistently have impaired mobility (85% have impaired gait velocity at 3 months and limited walking endurance after 1 year) resulting reduced mobility even when compared to sedentary adults.5,6 These mobility limitations amplify the impact of cognitive issues and decline in general wellness that can be seen in typical geriatric patients without a history of stroke, making them especially important to screen, assess, and intervene in order to reduce risk of further complications as much as possible.4

# Annual exam:

Outcome Measures in Waiting Room: These are all patient-self report that can be filled out while the patients wait and then scored either by receptionist (if trained) or by therapist at beginning of visit.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Test Of: | Positive Finding: | Clinical Reasoning |
| **Mini-Nutritional Short-Form**7,8  (Appendix A) | Nutrition, especially elderly that may be malnourished or at risk for malnutrition7 | 12-14: normal nutritional status;  8-11: at risk of malnutrition;  0-7: malnutrition8 | This measure is a short (6 item), validated tool in elderly populations that screens for malnutrition and can trigger need for more in-depth nutritional education.7,9 |
| **Pittsburg Sleep Quality Index**  (Appendix B) | Sleep quality in 7 domains: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction.10 | >5: abnormally poor sleep | Sleep is crucial for multiple aspects of tissue healing, cognitive function, immune function, and quality of life. This short screen identifies those with “good” or “poor” sleep habits to help guide intervention, referrals, and additional subjective questions if necessary.11,12 |
| **Geriatric Depression Screen**  (Appendix C) | Feelings of depression and life satisfaction | 0-4: normal  5-8: mild depression  9-11: moderate depression  12-15: severe depression4 | This is an important screen for both geriatric and specifically patients with chronic stroke as post-stroke depression is found in 5-60% of the population.4 Can be used to indicate need for referral. |
| **Life Satisfaction Questionnaire -9**  (Appendix D) | Life Satisfaction (general, social, financial, self-care)13 | 1-3: dissatisfied  4-6: satisfied | This screen can help assess social and emotional dissatisfaction, important components of patient wellbeing, and can guide further conversation about stress, coping, or additional emotional resources that may not be indicated from depression screening alone.13,14 |

Subjective: Goal of this section is to be a more fluid conversation based on patient responses to each of these fields. Certain areas may be discussed at greater depth in some patients compared to others. *(20-25 min total)*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Test Of: | Positive Finding: | Clinical Reasoning |
| PMH | Confirm, correct, and update medical history, especially any changes in past year. | n/a | It is important to confirm medical history as well as update patient files for changes in status or diagnoses over past year, can indicate need for referral to specialists or initiation of PT treatment plans (ex: balance training with new hx of falls as well as referral to vision, vestibular, cardio, or PCP depending on presentation of sx). |
| Medication Reconciliation | Patient medications, assessment of patient ability to manage and adherence to list. Assessing for repetition and outdated orders. | Polypharmacy (>5 drugs per day), dangerous drugs (benzodiazepines, anti-depressants, or SSRIs)15,16 | To assess for risk of polypharmacy and potential complications, as well as assessment of adherence and possible interactions/side effects that could affect patient mobility.15,17 |
| Co-morbidities | A component of PMH | 5+ (85% greater mortality) or 6+ (112% greater mortality)1 | Assess for presence of geriatric syndromes, important and significant predictor of mortality, found to be dose-response relationship.1 |
| Bowel/Bladder Function | Assessment for function, risk of UTI, screen for incontinence | Change in ability to care or increase in incontinence or UTI frequency | Commonly impaired in individuals post-stroke.6 Often under-reported, important factor in falls, mobility, social engagement, stress, and isolation.18 |
| Physical Activity | Compliance with national PA recommendation, ADL disability | 150+ min of mod activity and 2+ days of strength training OR 75+ min vigorous activity and 2+ days strength training | Inactivity is associated with increased risks both for general geriatric population and patients with chronic stroke.5,6 Found to be protective and improve mobility, independence, safety, ROM, and reduce contractures in patients with chronic stroke. 19 |
| Falls | Frequency of falls and fear of falling. | One or more falls in last 12 months, feelings of unsteadiness while walking, fearful of falling. | An important factor that is related to QoL, independence, general mobility, and sig related to mortality, especially as patients age.1 |
| Nutrition | Compliance with national recommendations | 5-9 servings of fruits and vegetables /day.  25-30 g fiber/day  Increase whole grain  64 oz water/day  2+ servings of low-fat dairy each day (low-fat milk, cheese, etc).  2+ servings fish /week.  < 2,400 mg sodium/day20  AND/OR  Abnormal BMI (see below) | Good nutrition is important for healing, immunity, body weight, and energy, all important factors of well-being and daily functional performance.20,21 |
| Stress/Anxiety | Stress and anxiety | Felt anxious: some-all of the time  Not able to control worry: some – all of the time | Important indicator of emotional/psychological well-being. Has been shown to be sig indicator of mortality in elderly.1,4 |
| Smoking | Does patient smoke? If so, how much and how long?  Are they interested in quitting? | Patient smokes or uses smokeless tobacco | Significant increase in risk for a number of conditions and overall mortality. Large predictor of CHD and a second stroke, initiate smoking cessation as possible.22,23 |

Objective: *(27-32 min total)*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Test Of: | Positive Finding: | Clinical Reasoning |
| Vitals  *(5 min)* | BP | <120/<80: normal, anything above is in a stage of HTN. Assess for HTN as well as change from pt norm24 | Quick measure that can track changes, indicate increased risk of HTN and CHD.22,24 |
| HR | 60-100 bpm: normal25 | Identification of abnormalities and indication of need for referral to cardiologist. |
| Height/Weight - BMI | 18.5-24.9: normal for adults  <23: increased risk of mortality and malnutrition1,26 | This quick objective calculation is an important number for tracking of nutritional health, well-being, and has been connected to all-cause mortality in older adults.1,26 |
| Waist Circumference | Men: >40 in.: high risk  Women: >35 in.: high risk27,28 | This quick, objective measure has been shown to be a valid predictor of adverse health outcomes and superior to BMI when assessing risk due to obesity.21,27,28 |
| MMT  *(5 min)* | Strength and frailty | Weakness relative to unimpaired side or that has decreased resulting in functional limitation. | Possibly only completed through functional measures (ex: sit-stand) or grossly across major joints or in response to patient-reported weakness. Increased frailty and weakness commonly results in limited mobility, independence with ADLs, and participation.1,2,29 |
| TUG  *(2 min)* | Gait, balance, functional mobility | > 14 sec: abnormal/ impaired30  Stroke norm: 22.6 sec  Adult norm: 9.1 sec | This quick test requires minimal clinic space, time or equipment while still allowing us to see safety of transfers, ambulation, turning, and possibly use of AD. The measure is reliable and valid in this population with clear cut-off scores.30,31 |
| Berg  *(10 min)* | Balance, functional mobility | 45+/56: normal  <45: abnormal/ impaired32,33 | This is a validated and reliable measure of static and dynamic balance and risk of falls in elderly and patients with chronic stroke.32,33 Can be helpful in determining need for intervention or adaptation to AD. |
| MoCA  *(10 min)* | Cognitive function | >26: normal  <26: cognitively impaired34 | Commonly impaired in patients with stroke and geriatric patients alike.1,4 This short test is helps indicate possibility of worse outcomes, this measure is valid in the population and can be used to make appropriate referrals.35 |

Stroke Specific**:** These measures are more specific to patients with chronic stroke as they can be used to track progress and prognosis, identify new/emerging equipment needs, or additional risks/assistance needed. These can be assessed verbally (ex: “have you have any changes in ability to feel with hands or feet?” or “do you have any issues with vision, has it changed in last few months?”). Responses can be documented if no concerns or changes, and can be assessed further if indicated by change in patient presentation. *(5-8 min)*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Test Of: | Positive Finding: | Clinical Reasoning |
| Sensation36 | Sensation | Impaired relative to unaffected, decrease from last assessment | Can impact mobility, safety with mobility, independence, and put patients at risk for development of ulcers, infections, and skin breakdown. |
| Tone/Spasticity36 | Tone/Spasticity | Impaired relative to unaffected, decrease from last assessment | Can impact mobility, safety with mobility, and independence. An important progress/prognostic indicator. |
| Synergistic Movement36 | Brunnstrom Stage | Impaired relative to unaffected, regression from last assessment | Can impact mobility, safety with mobility, and independence. An important progress/prognostic indicator. |
| Visual Field/Neglect36 | Visual Field/Neglect | Visual field disturbance or neglect. | Can impact mobility, safety with mobility, and independence. |

# Resources and Referrals:

## Nutrition:

## Information:

## Choose MyPlate – for Older Adults - <https://www.choosemyplate.gov/older-adults>

* + National Institute on Aging - Smart Food Choices for Healthy Aging - <https://www.nia.nih.gov/health/smart-food-choices-healthy-aging>
* Based on the results of the Mini-Nutritional Short Form any additional questioning, and BMI calculations, it is possible that the patient could be identified as malnourished and underweight as this is common both in geriatric patients and patients with chronic stroke. Research has shown stroke patients can lose as many as. 45% of patients who have had a stroke lose more than 3 lbs in the months following their stroke.37 This in addition to common limitations in mobility, activity, difficulty with ADLs such as feeding, and increased sedentary lifestyles often lead to unhealthy or malnourished states.5,6,38 With malnutrition and frailty being significant markers for poor prognosis and death in these elderly patients, appropriate recommendations as well as referrals are important to make timely behavior changes.1 Referral to dietitian as needed for more specific/detailed diet guidance and intervention as well as possibly a speech therapist, social worker, mental health professional, or dentist, depending on the nature of the issue.

**Activity/Mobility:**

* Information:
  + Silver Sneakers programs - <https://boomerbenefits.com/silver-sneakers-medicare/>
  + Balance Programs (Tai-Chi, Yoga, Matter of Balance, dance, etc.) - <https://www.ncoa.org/healthy-aging/falls-prevention/falls-prevention-programs-for-older-adults-2/>
* As described at length above, activity, mobility, and participation limitations are common in patients after a stroke. This puts already at-risk patients at an even greater risk of complications due to adoption of a sedentary lifestyle.5,6,19 Depending on limitations found during the examination through subjective reporting or functional measures, it is possible therapy for balance or gait training is indicated. Studies have consistently shown that consistent exercise improves functional outcomes after a stroke, making it all the more important to find something that works for these patients long-term.19 Therefore, evidence-based programs such as Tai-Chi or Matter of Balance can be great community resources for continued activity and exercise after completion of necessary therapy.39–42 More specific referrals can be made depending on geographic location and patient ability, but the goal is community engagement in a program that encourages continued activity. Possible referrals could include: PT, to address mobility/balance limitations that may be restricting activity; personal trainers, to guide activity if PT is not necessary; or DME provider, to advise/modify equipment if that is limiting factor.

**Social/Cognitive/Emotional:**

* Information:
  + Depression in Older Adults- <https://www.helpguide.org/articles/depression/depression-in-older-adults.htm>
  + Local Senior Center (provide opportunities for networking, social engagement, and activities)
* Emotional, psychological, and social well-being are important parts of healing, QoL, and general wellness that are commonly affected both in geriatric patients and also patients with chronic stroke. Post-Stroke depression has also been shown to be related to cognitive impairment such as attention, memory, visual perception and construction, and language, further highlighting it’s importance in recovery and QoL.4 Research has shown for a variety of interventions ranging from behavioral and cognitive therapy to continued exercise and strength training to be effective in reducing depressive symptoms later in life, making these promising routes of referral for these patients.43 Further referrals to counseling services, stroke support groups, Psychiatrist or Psychologist as indicated by questionnaires and subjective interviewing.

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# Appendix:

1. **Mini-Nutritional Short Form**

Complete the screen by filling in the boxes with the appropriate numbers. Total the numbers for the final screening score.

Last name: First name: Date: \_\_\_\_\_\_\_\_\_\_  
Sex: \_\_\_\_\_\_\_\_ Age: \_\_\_\_\_\_\_\_ Weight, kg: \_\_\_\_\_\_\_\_\_ Height, cm: \_\_\_\_\_\_\_\_\_\_

1. **Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties?**0 = severe decrease in food intake  
   1 = moderate decrease in food intake

2 = no decrease in food intake

1. **Weight loss during the last 3 months**

0 = weight loss greater than 3 kg (6.6 lbs)  
1 = does not know  
2 = weight loss between 1 and 3 kg (2.2 and 6.6 lbs) 3 = no weight loss

1. **Mobility**

0 = bed or chair bound  
1 = able to get out of bed / chair but does not go out 2 = goes out

1. **Has suffered psychological stress or acute disease in the past 3 months?**

0 = yes 2 = no

1. **Neuropsychological problems**

0 = severe dementia or depression 1 = mild dementia  
2 = no psychological problems

1. **1 - Body Mass Index (BMI) (weight in kg) / (height in m**)**2**

0 = BMI less than 19  
1 = BMI 19 to less than 21  
2 = BMI 21 to less than 23

3 = BMI 23 or greater

**2 - Calf circumference (CC) in cm**

0 = CC less than 31 3 = CC 31 or greater

**Score: \_\_\_\_\_**(12-14: normal nutritional status; 8-11: at risk of malnutrition; 0-7: malnourished)page1image465883584

1. **Pittsburg Sleep Quality Index (PSQI)**

Instructions: The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions. During the past month,

1. When have you usually gone to bed? \_\_\_\_\_\_\_\_\_\_\_\_\_\_  
2. How long (in minutes) has it taken you to fall asleep each night? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. When have you usually gotten up in the morning? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. How many hours of actual sleep do you get at night? (This may be different than the number of hours you spend in bed) \_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 5. During the past month, how often have you had trouble sleeping because you... | Not during the past month (0) | Less than once a week (1) | Once or twice a week (2) | Three or more times week (3) |
| a. Cannot get to sleep within 30 minutes |  |  |  |  |
| b. Wake up in the middle of the night or early morning |  |  |  |  |
| c. Have to get up to use the bathroom |  |  |  |  |
| d. Cannot breathe comfortably |  |  |  |  |
| e. Cough or snore loudly |  |  |  |  |
| f. Feel too cold |  |  |  |  |
| g. Feel too hot |  |  |  |  |
| h. Have bad dreams |  |  |  |  |
| i. Have pain |  |  |  |  |
| j. Other reason(s), please describe, including how often you have had trouble sleeping because of this reason(s): |  |  |  |  |
| 6. During the past month, how often have you taken medicine (prescribed or “over the counter”) to help you sleep? |  |  |  |  |
| 7. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity? |  |  |  |  |
| 8. During the past month, how much of a problem has it been for you to keep up enthusiasm to get things done? |  |  |  |  |
| 9. During the past month, how would you rate your sleep quality overall? |  |  |  |  |

Component 1 #9 Score................................................................................. C1\_\_\_\_\_\_\_

Component 2 #2 Score (≤15min=0; 16-30 min=1; 31-60 min=2, >60 min=3) + #5a Score  
(if sum is equal 0=0; 1-2=1; 3-4=2; 5-6=3).............................. C2\_\_\_\_\_\_\_

Component 3 #4 Score (>7=0; 6-7=1; 5-6=2; <5=3) ..................................... C3\_\_\_\_\_\_\_

Component 4 (total # of hours asleep)/(total # of hours in bed) x 100

>85%=0, 75%-84%=1, 65%-74%=2, <65%=3 ........................ C4\_\_\_\_\_\_\_

Component 5 Sum of Scores #5b to #5j (0=0; 1-9=1; 10-18=2; 19-27=3)..... C5\_\_\_\_\_\_\_

Component 6 #6 Score ................................................................................. C6\_\_\_\_\_\_\_

Component 7 #7 Score + #8 Score (0=0; 1-2=1; 3-4=2; 5-6=3).................... C7\_\_\_\_\_\_\_

Add the seven component scores together ........... **Global PSQI Score** \_\_\_\_\_\_\_\_

1. **Geriatric Depression Scale (GDS)**

Instructions: Circle the answer that best describes how you felt over the past week.

Yes/No

Yes/No

Yes/No

Yes/No

Yes/No

Yes/No

Yes/No

Yes/No

Yes/No

1. Are you basically satisfied with your life?
2. Have you dropped many of your activities and interests?
3. Do you feel that your life is empty?
4. Do you often get bored?
5. Are you in good spirits most of the time?
6. Are you afraid that something bad is going to happen to you?
7. Do you feel happy most of the time?
8. Do you often feel helpless?
9. Do you prefer to stay at home, rather than going out and doing things?
10. Do you feel that you have more problems with memory than most?

Yes/No

Yes/No

Yes/No

Yes/No

Yes/No

Yes/No

1. Do you think it is wonderful to be alive now?
2. Do you feel worthless the way you are now?
3. Do you feel full of energy?
4. Do you feel that your situation is hopeless?
5. Do you think that most people are better off than you are?

Total Score \_\_\_\_\_\_\_\_

1. **Life-Satisfaction Questionnaire-9 (LISAT-9)**

Adapted from Fugl-Meyer AR, Branholm IB, and Fugl-Meyer KS, Happiness and domain-specific life satisfaction In adult northern Swedes, Clin Rehabil, 5: 25-33, 1991; Table 3. Used with permission from Sage Publishing.

Patient Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How satisfactory are these different aspects of your life? Indicate the number which best suits your situation.

1 = very dissatisfying 4 = rather satisfying

2 = dissatisfying 5 = satisfying

3 = rather dissatisfying 6 = very satisfying

Score: (1-6)

Life as a whole is \_\_\_\_\_\_\_\_

My ability to manage self-care (dressing, hygiene, transfers, etc.) is \_\_\_\_\_\_\_\_

My leisure situation is \_\_\_\_\_\_\_\_

My vocational situation is \_\_\_\_\_\_\_\_

My financial situation is \_\_\_\_\_\_\_\_

My sexual life is \_\_\_\_\_\_\_\_

My partnership relation is \_\_\_\_\_\_\_\_

My family life is \_\_\_\_\_\_\_\_

My contacts with friends and acquaintances are \_\_\_\_\_\_\_\_

Sum: \_\_\_\_\_\_\_\_