The background features a faded, grayscale brain scan with several colored regions highlighted in green, yellow, and blue. On the left side, there are several vertical blue lines and a series of blue circles of varying sizes, resembling a decorative graphic or a list of points.

COMMUNITY VOCATIONAL REHABILITATION CASE STUDIES

CASE STUDY 1: TRAINEE GP

- 48 year old male, just started GP training in August 2011
- Previously worked as a surgeon.
- Lived with wife & 3 young children of primary school age.
- Admitted to A&E with dizziness & left sided weakness on the 18th October 2011.
- Diagnosed with right MCA infarct and underwent thrombolysis at his local hospital – initial improvement followed by significant deterioration.
- Transferred to SRFT for CT angiogram, but unable to identify clot. Transferred back to local hospital for in-patient rehabilitation.
- Past history included NIDDM & one episode of Sarcoidosis
- Received in-patient rehabilitation for 6 weeks

CASE STUDY 1: TRAINEE GP

- Discharged from his hospital on the 29th November 2011 having achieved:
 - Ability to walk very slowly indoors independently with a stick
 - Independence in self-care with support/supervision
 - Downstairs living as unable to do the stairs
 - STARs enablement team 4 times a day to support personal and domestic tasks
 - MOCA was reported as 19/30
 - Low mood was reported, due to sudden lifestyle change
 - Noted to be very motivated
 - Referred for a wheelchair
 - Likely limited potential to return to previous lifestyle
- First appointment with the CNRT on the 8th December 2011

CASE STUDY 1: TRAINEE GP

Generally observed:

- No problem with communication
- No obvious problems with cognition?
- Sick pay from work
- Wants left arm function to improve to return to work
- Would like to return to work in April 2012

Patient reported problems:

- Unable to use left hand functionally
- Unable to drive
- Unable to work
- Unable to go out

HowRU™

Please take the form and complete it by placing a cross on, or a circle around one item (face) on each line to indicate how you are today.

Give the completed form to your therapist or support worker and they will add it to your patient records.

How are you today?
Please place a cross on or a circle around one item (face) on each line.
Give the form to the doctor or nurse when you go in.

	none	slight	quite a lot	extreme
Symptoms such as pain	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feeling low or worried	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Limited in what you can do	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dependent on others	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(1) (2) (3) (4)

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howRU™

By recording this, we can check your progress. It will help them see how you have been getting on.
We hope that this will be one more way to help.

Date Completed: 8/12/11

CASE STUDY 1: TRAINEE GP

Physical baselines: Walking

- 10m Timed Walk on the 15th December 2011 = 0.26m/s
- It took him 3 minutes to walk into the gym from the waiting area. He was unable to walk & talk.
- His walking speed was equivalent to a household ambulator of an individual in their 90's

Physical baselines: Balance

- BERG Balance score on the 16th December 2011 = 27/56
- Indicated balance ability was at the level of walking with assistance
- Predicted falls risk = high

Physical baselines: Exercise tolerance = poor

Physical baselines: No movement in the left upper limb. Severe shoulder pain.

CASE STUDY 1: TRAINEE GP: 3 EPISODE OF INTENSIVE CNRT

Episode 1:

- 3.5 months duration.
- 129 contacts, 1-2 contacts daily Monday to Friday
- Achieved walking outdoors independently, gait speed 1.08m/s (community ambulator, insufficient for safe crossing of the road)
- BERG Balance = 53/56
- No shoulder pain, active shoulder (flexion, abd, ER/IR, ext) and elbow movement (flexion/extension)
- Attending the gym independently 4 times a week for 1 ½ hours each session



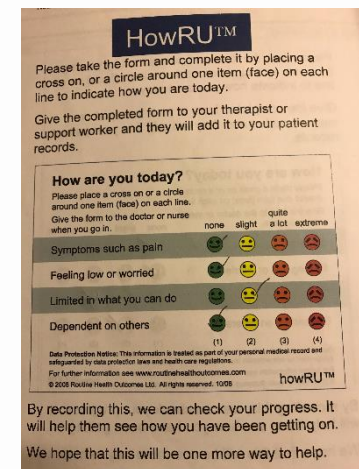
CASE STUDY 1: TRAINEE GP: 3 EPISODE OF INTENSIVE CNRT

Episode 1:

- MOCA repeated = 27/30
- No significant deficits in more comprehensive assessments
- Unable to return to work, Occupational Health (OH) Consultant sceptical about further recovery but agreed to monitor before making recommendations.
- QoL (PGI) improved from 10% to 50.8%

1st June 2012 OH Consultant wrote to the NW Deanery:

- 'At present, the fact that he does not have any effective function of his left arm makes it very difficult for him to work in any capacity as a clinician. It will be important for him to gain some function in that arm before he can be deemed fit to resume his training.
- Requested letter from CNRT



HowRU™

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howRU™

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CASE STUDY 1: TRAINEE GP: 3 EPISODE OF INTENSIVE CNRT

Start of CNRT

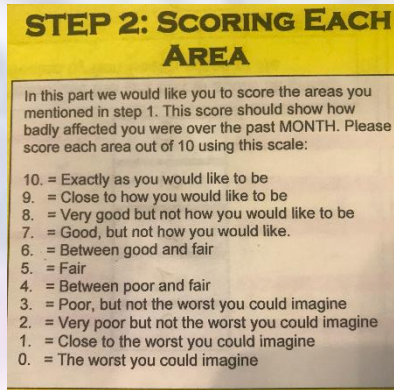
QoL (PGI) was scored at 10%

Self Score:

- Unable to work (0)
- Unable to drive (0)
- Not going out (0)
- Unable to use left arm functionally (2 = very poor but not the worst you could imagine)

Spend Points (12):

- Unable to use left arm functionally (6)
- Unable to work (4)
- Unable to drive (2)



End 1st Episode CNRT

QoL (PGI) was scored at 50.8%

Self Score:

- Unable to work (5)
- Unable to drive (7)
- Not going out (10)
- Unable to use left arm functionally (2 = very poor but not the worst you could imagine)

Spend Points (12):

- Unable to use left arm functionally (6)
- Unable to work (2)
- Unable to drive (3)
- Not going out (1)

CASE STUDY 1: TRAINEE GP: 3 EPISODE OF INTENSIVE CNRT

Episode 2:

- 4 months duration.
- 119 contacts, 1-2 contacts daily Monday to Friday
- Achieved walking outdoors independently & supervising his children, gait speed 1.33m/s (community ambulator, sufficient for safe crossing of the road)
- On/off the floor at pace
- BERG Balance = 55/56
- Commenced UL FES as adjunct to physiotherapy, bimanual activities
- Able to place object in hand & hold it with a gross grip i.e. hold TV remote or small drinks bottle. Able to release.
- Still attending the gym independently 4 times a week for 1 ½ hours each session



CASE STUDY 1: TRAINEE GP: 3 EPISODE OF INTENSIVE CNRT

Episode 2:

- Passed driving test
- QoL (PGI) improved from 50.8% to 75%
- CNRT letter included objective & personal goals

13th July 2012 OH Consultant wrote to the NW Deanery:

- 'Impressed with the progress made in a short period of time, noted the significant hard work & dedication of Dr Mahmood'.
- Advised with appropriate support he could resume work with restricted duties in the near future. His Trainer would need to attend to determine what support he would need.

CASE STUDY 1: TRAINEE GP: 3 EPISODE OF INTENSIVE CNRT

Episode 3:

- 4 months duration.
- 86 contacts, 2-4 contacts Monday to Friday
- Gait speed improved further 1.43m/s
- Bimanual tasks & FES (electrodes & wand/probe)
- Simulated clinic activity
- Able to open door with left hand, lumbrical and finger activity but weak & unable to use consistently in tasks
- Still attending the gym independently 4 times a week for 1 ½ hours each session
- Driving
- Returned to reduced hours working restricted activities



CASE STUDY 1: TRAINEE GP: 3 EPISODE OF INTENSIVE CNRT

Episode 3:

- Lack of support from GP Trainer – opinion would not be able to work as a GP
- QoL (PGI) fluctuated between 85% to 55%

12th December 2013 OH Consultant wrote to CNRT as the Deanery had received concerns from the GP Trainer:

- Deanery had concerns as to his ability to fulfil all competencies which in essence require emergency work including CPR, ability to examine using bimanual palpitation, examine young children, in particular ENT examination necessitating the use of both hands.
- ‘Given the duration of Dr Mahmood’s CVA my understanding of further potential recovery is that this is likely to be very limited.’
- Asked for a detailed report particularly on the recovery likely to be achieved with the left hand.

CASE STUDY 1: TRAINEE GP: 3 EPISODE OF INTENSIVE CNRT

Episode 3: CNRT letter:

- Brief overview of progress e.g. gait speed of 0.2m/s (household ambulator) in December 2011 to 1.43m/s (independence in community, safe crossing roads) in April 2012; no movement in the left arm in December 2011 to place and hold an object in his hand, carry objects in both hands, limited bimanual activities in the gym etc
- What is seen in therapy e.g. weak selective activity to posture for a variety of grip positions with facilitation but unable to posture and hold positions voluntarily. Duration of postural hold increasing
- Link the evidence with the observations e.g. central weakness and disuse weakness; form-function and use-dependent activities etc
- Gaps in evidence and expert view e.g. 'patients should continue to receive neuro-rehabilitation until they show no further improvements in activity & participation markers'
- Certificates of competency already achieved and engagement of REMAP® or equivalent to create modifications to holding of equipment or alternative methods involving one hand
- Predict progress in a timeframe e.g. 4 months will be able to.....

CASE STUDY 1: TRAINEE GP: 3 EPISODE OF INTENSIVE CNRT

Outcome: December 2019

- Changed GP Trainer, shown 1-handed techniques & required minimal adjustments to the work place
- Passed GP training & now 'living the dream' working as a GP
- Regularly attends the gym & keeps himself fit & well
- Wears a tubigrip on his arm for the proprioceptive feedback
- Patients do not know he has had a stroke – think he has 'injured' his arm on seeing the tubigrip
- Deanery was noted to be very supportive
- OH was noted to be very supportive
- Sees 'neuro-rehabilitation' as having saved his life
- QoL at 100%

A decorative graphic featuring a stylized brain with various colored regions (green, yellow, blue, red) highlighted. To the left of the brain, there are several blue circles of varying sizes, some overlapping a vertical blue line. The background is a light blue gradient.

CASE STUDY 2

Sian Minshull-Easthope

HMR CSNRT

VOCATIONAL REHABILITATION

Is a process which enables persons with functional, psychological, developmental, cognitive, and emotional disabilities or impairments or health disabilities to overcome barriers to accessing, maintaining, or returning to employment or other useful occupation.

PATIENT P

- 55 year old gentleman
- 'high level' stroke
- Previously self employed window cleaner
- Complex functional movement synergies in walking and balance
- His core values and measures of self worth heavily focus on working, 'bread winning for family' and not being reliant on 'family handouts'.
- Followed inpatient and ESD pathway
- Was open to the probability that he would not return to full cleaning round – that we would explore cleaning the downstairs windows only (no ladders) and completing the money collection rounds – he suggested he 'shared' the rounds with a friend (who would do upstairs widows/ladder work)
- Negative in view of recovery and his perception of his walking ability – “around 70%” back to normal.

NRT ASSESSMENT

- Minimal underlying neurological/activity deficit
- Weakness around core activity – demonstrated quick change with isolated and specific core exercises
- Standing postural control – previous habitual patterns and body shape = reliant on soleus, tibialis posterior and long flexors to manage forward postural perturbations and hold/arrest of forward momentum
 - Forward lean on ladder to clean windows
 - Large tummy (excessive drinking and poor eating habits)
- Normal walking strategy utilises greater degree of inversion, supination at foot and ankle (tib ant activity with increased peroneus to counter inversion pull)

GAIT ON ASSESSMENT

VIDEO



RISK – TO CONTINUE WITH THIS PATTERN WOULD RISK:

- Will not increase walking distance
- Risk of falls with dynamic postural challenges inherent in window cleaning
- Increased pain – hip and shoulder
- Increased tone in lower leg with probable need for medical intervention
- High probability of medical intervention for pain (neuropathic pain relief/muscle relaxants and risk of muscle relaxant effects centrally leading to higher tone and fixation behaviours distally)
- **NOT RETURNING TO WORK**
- Impact on mood
- Impact on financial self support/reliant on benefits
- Family relationships under strain

ISSUES PREVENTING RETURN TO WORK

- Any outside mobility over moderate distance produced groin pain which limited any further walking
- Right shoulder pain on over 90 degree movements
- Right stance time reduced – lack of active lateral weight transference onto stance leg = reliant on fixation strategies (UL, right hip and pelvis) to prevent fall and allow left swing
- Lack of active extension through right stance = lacks toe off, knee release timing for passive timed swing and therefore reliant on creation of a rigid lever to 'swing' right leg (supination, inversion at ankle, hip flexion fixation with pelvic roll to create swing)
- Can't clean the windows
- Cant walk the round to collect money

TREATMENT

- Focused exploration on limitations to return to 'normal' walking – biomechanical restrictions preventing more normal muscle synergies
- Lack of length over anterior hip
- Lack of length in lumbar spine and posterior pelvis
- Hypersensitivity in foot and lower leg (greater than normal/other leg)
- High tone and fixation strategies feeding biomechanical length changes in tibialis posterior, soleus, peroneus longus
- Movement 'behaviour' and timing changes in response to adopted gait strategies – reverse action hamstrings, weakness in gastroc, gluts (min/med and max) and postural core muscles.
- Exploration of ability to change limiting factors through dynamic, self driven activities with facilitation of sequencing changes in more 'neutral' biomechanical alignment to enhance timing and control through range available

OUTCOME

- Able to influence and change movement behaviours to create less risky gait
- Able to change behaviours to increase functional mobility
- Exploration of best method of achieving long term behaviour change (orthotics/taping/FES) – rehab devices (3/12), not planned for long term use.
- Able to introduce self management strategies - gym programme
- Influence perception of self and how he views progress in order to 'self manage' with fewer risks
- Self managed phased return to work

UNSEEN LIMITING FACTOR

- No cognitive deficits identified throughout pathway
- On observation in gym – P struggled to self manage/moderate his behaviour to shift focus of sessions from ‘achieving target’ to ‘achieving technique’
- Couldn’t see past speed, time target, amount of weight being lifted, previous gym activities
- His self measurement of efficiency is SPEED
- Able to see in context of his work that good technique will lead to increased speed, however, struggled to analyse own movement technique and ‘manage’ in order to gain more efficiency and form ‘better habit’.

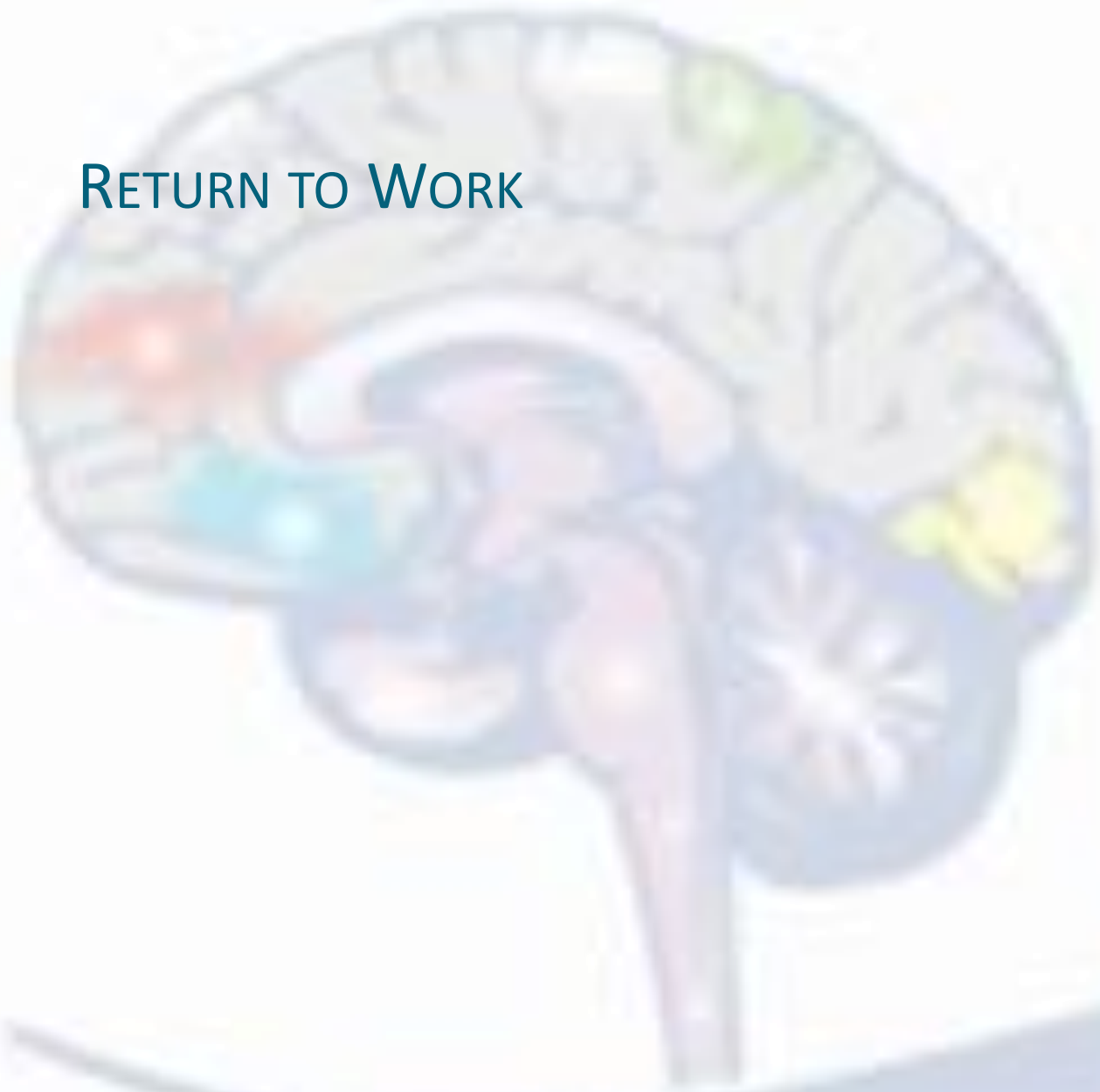
CHANGE??

- Discussion with neuropsychologist
- 3 options :-
- To spend time (with neuropsychologist) addressing internal values and expectations mismatch
- Challenge view of efficiency through discussion with P to widen the scope of thinking from:
 - Efficiency in walking = speed or distance/time
 - to: Efficiency in walking = good technique
- Offer option for P to gain others perspectives of his walking as a way of validating or challenging his own belief
- 'Therapy' goal – manage the risk that P will reinforce bad technique in gym in order to achieve a 'faster' gait and 'stronger' leg.

GAIT NOW

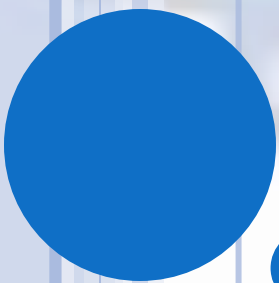
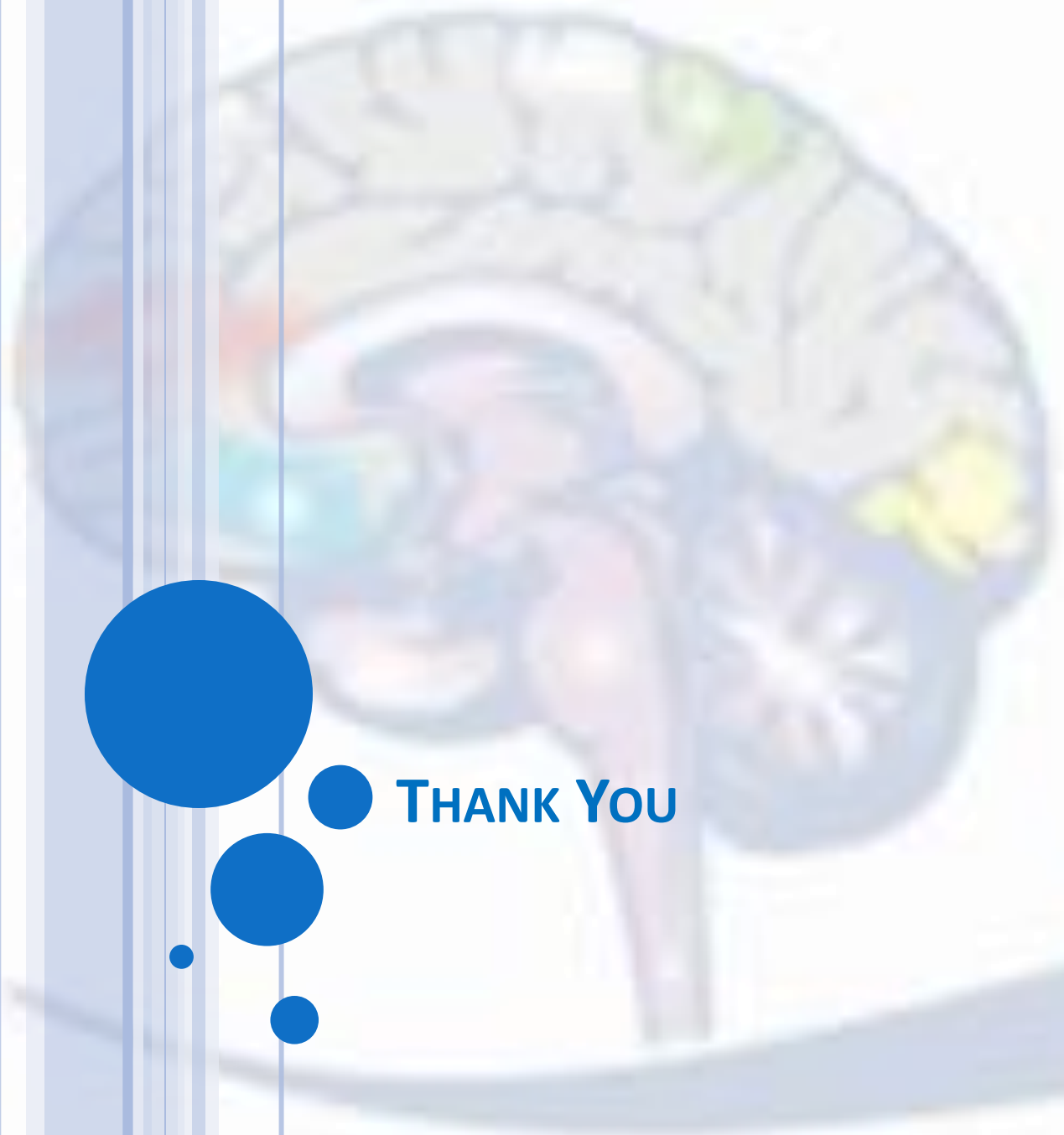


RETURN TO WORK



ACHIEVEMENT

- Phased, self managed return to work – now completing 2 hour collecting rounds with friend
- Begun half day return to window cleaning round with friend – downstairs windows
- Gym programme – completing final assessment of ability to self manage
- Awaiting push-aqui for use over next 3/12 – planned review.



THANK YOU