



Government of Western Australia
North Metropolitan Health Service
Sir Charles Gairdner Osborne Park Health Care Group



SSA / Smart Strokes Conference 2018

August 7-10, Sydney

Jess Nolan – OPH Stroke Snr PT
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Stroke Epidemiology

Prof Valery Feigin

Director, National Institute for Stroke and Applied Neurosciences, and Professor of Epidemiology & Neurology
Auckland University of Technology

- 1970-2008
 - stroke incidence in high income countries ↓ by 42%
 - Low income countries - ↑ by 107%
 - Incidence of stroke in low income countries was higher than than high income countries for 1st time in 2008
- 1990-2016
 - Linear ↑ in absolute number of strokes but ↓ in rates
 - Stroke moved from 3rd to 2nd greatest cause of disability
 - ↑ incidence of overweight and T2DM

Stroke Epidemiology

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- Lifetime risk of stroke – used to be 1 in 6, now 1 in 4
 - China – now 1 in 3
- Biggest risks – air pollution (24%) smoking (23%)
- Stroke prevention – smart phones – Stroke Risk-o-meter
 - If all smart phone users use it – can expect annual reduction in incidence by 2%
- ICD – stroke now listed under diseases of nervous system



Making room in rehab for stroke prevention strategies

Dr Janice Eng – PT/OT at University of British Columbia

- 1 in 3 stroke survivors will have recurrent stroke or TIA
- Risk greatest in 1st 1-2 years
- Recurrent strokes – worse outcomes – greater stroke severity, dementia, mortality
- Predictors of recurrent stroke
 - Poor BP control
 - AF
 - Diabetes
 - Cardiac disease
 - ↑ age
 - ↓ income
 - Living I
 - Lower education
 - Untreated sleep apnea

Making room in rehab for stroke prevention strategies

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- 25,000 seniors – physical activity
 - Stroke survivors: >30% do NO leisure-time physical activity
 - Stroke worse than CV disease, musculoskeletal, neurodegenerative diseases



- >50% stroke survivors w/ Hx of HTN still couldn't identify HTN as risk factor

Making room in rehab for stroke prevention strategies

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- When should efforts at 2° prevention happen?
 - 19 stroke survivors, 10 caregivers
- May be more ready for secondary prevention once at home
- Need “experts” at later time point to give permission to move forward
- Need motivators to help change behaviour

Making room in rehab for stroke prevention strategies

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Parappilly BP et al (2018) and Sakakibara et al (2017)

- Self Mx education
 - ↑ med adherence
 - ↓ BP
 - ↑ phys activity
 - Better self-reported diet
 - ↑ knowledge of risk factors
 - No effect on smoking!
- Intervention – “stroke coach”
 - 7 phone sessions 30-60 mins over 6 months
 - Control group – phone sessions on memory + attention
 - Health report card – prioritise goals: physical activity, fruit/veg intake, fat intake, reduce sodium, % whole grain, stress management, waist measure, smoking status, BMI
 - So far – recruited 110 participants (target 125) – 94% agreed it helped. Descriptive data – lifestyle behaviour improved (both gps but intervention > control), BP systolic improved for intervention gp only
 - **5mmHg ↓ in SBP → 16% ↓ in stroke risk

Sensory retraining of the lower limb after stroke: a systematic review

Dr Suzanne Kuys, PT, Australian Catholic University

- 85% of stroke survivors have somatosensory impairment
 - Impact on balance / gait
 - ↓ load detection
 - ↑ falls
 - ↓ gait velocity
 - Stride length / stride asymmetry
- Aim
 - Effects of LL somatosensory retraining
 - Primary outcomes – balance / gait after stroke
- Methods
 - Included all quantitative studies w/ intervention – Ax w/ Quality Assessment Tool for Quantitative Studies
 - 10 included in meta-analysis (0 strong, 5 moderate, weak 10)



Sensory retraining of the lower limb after stroke: a systematic review

Dr Suzanne Kuys, PT, Australian Catholic University

- Interventions
 - Combined – education + training
 - Hardness discrimination
 - Vibration
 - TENS
 - Proprioceptive training
- Outcomes
 - Berg, postural sway area
 - Gait velocity
 - Somatosensory Ax



Sensory retraining of the lower limb after stroke: a systematic review

Dr Suzanne Kuys, PT, Australian Catholic University

- Results
 - Somatosensory training – non-significant change for gait
 - Small effect on somatosensory impairment and Berg
- Discussion
 - No change on gait - ? Not sufficient? Not specific to gait? Heterogeneity of interventions? Small sample size...
- Conclusion
 - Somatosensory training can be effective for improving somatosensory impairment after stroke

Stroke Rehabilitation: Mission Impossible?

Avril Drummond, OT, University of Nottingham

- Evidence / progress that has been made in stroke rehab
 - Prevention of contractures
 - Focus on CV fitness
 - Research culture
 - Patient / carer involvement
- Hitches
 - Ethics / governance red tape
 - Politics around research
 - Timelines problematic
- Mindset
 - Need to ask questions that are relevant for patients, carers, clinicians
 - Severe stroke / “no potential”

Stroke Rehabilitation: Mission Impossible?

Avril Drummond, OT, University of Nottingham

- Dose in trials
 - Aphasia - +ve trials: 9 hrs / week, -ve trials 2 hrs/week
 - Learning a skill – Ericsson's 10,000 hours
- Equivocal results
 - Rx doesn't work?
 - Poor outcome measures?
 - Study design issues?
 - Science aspects
 - Eg control group + effect of patient info sheets?
Roll out in very different units?

Stroke Rehabilitation: Mission Impossible?

Avril Drummond, OT, University of Nottingham

- **HOVIS Trial**
 - Clinical uncertainty – RCT – home visits
- **EXTRAS** (Rogders et al – will be published soon)
 - RCT to evaluate extended rehab service for stroke patients – phone or face to face interviews after D/C
 - Did not improve ADLs, mood or health status – but patients satisfied

Stroke Rehabilitation: Mission Impossible?

Avril Drummond, OT, University of Nottingham

- ReACT Trial
 - Why are some units not providing recommended therapy dose?
Compared 'stellar' units with less strong units
 - Staffing levels
 - Patient factors
 - Strong units – timetabling, ↓ admin time, ↓ info exchange time
 - Weaker units – concern re knowledge of evidence base.
Better units aware of national audit and tick KPI boxes
 - Organisational (not patient) factors were main determinants influencing frequency and intensity of therapy
 - ** shift in thinking and practice towards patient-centred rather than therapist-centred working – eg breaks, start/finish times, etc.

Stroke Rehabilitation: Mission Impossible?

Avril Drummond, OT, University of Nottingham

- Overall
- There is good research out there – need to implement it
 - Organisation of services
 - TEAMWORK!!

Intensity of Practice After Stroke

Erin Godecke, Lauren Christie,
Emma Schneider, Simone Dorsch, Annie McCluskey, Claire Stewart, Laura Joliffe, Karl Schurr

- Key messages
 - Stroke survivors want opportunities for practice
 - Stroke survivors need help to maintain motivation, develop routines / structure outside therapy



Intensity of Practice After Stroke

Erin Godecke, Lauren Christie,
Emma Schneider, Simone Dorsch, Annie McCluskey, Claire Stewart, Laura Jolliffe, Karl Schurr

- *Systematic review of clinical practice guidelines to identify recommendations for rehabilitation after stroke and other acquired brain injuries* (Laura Jolliffe)
 - Key factors:
 - Facilitate practice
 - Min 3 hours of direct, task-specific therapy 5 days / week
 - As much as possible, repeatedly and in different settings
 - Video feedback where possible
 - Circuit format to ↑ opportunity
 - Patients should be mobilised early and frequently
 - If active wrist + finger extension: CIMT – min 2 hrs therapy + restraint 6 hours
 - Task practice within and outside therapy sessions

Intensity of Practice After Stroke

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- Need to come up with solution-focused strategies for change
 - Strategies to bridge gap between fully supervised, semi-supervised and independent practice
 - ***groups should be used
 - ***set up practice that is not reliant on 1:1 therapist supervision
 - set up practice that provides feedback
 - Written instructions
 - Equipment
 - Environment

**PhysiotherapyExercises.com

Record / model good practice

Use counters

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Therapy groups to ↑ activity (Patterson et al, 2017)

- 4 key principles
 - Target individualised goals with multiple people
 - Offer peer support, enable learning and motivation
 - ALL rehab units should provide some group training
 - Adaptations and flexibility to meet needs of patients with cognitive and behavioural changes
- Dressing retraining group – address OT staffing shortage
 - “clothes over clothes”
 - Task-specific goals – eg 5 buttons in 2 minutes, then reps of practice
 - All patients had greater FIM change with rehab than national average

Intensity of Practice After Stroke

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- Balance group – Bankstown Hospital
 - 3 principles
 - ↓ BOS
 - Control COM
 - Don't hold on with hands
 - RCT: 2 weeks of class (3x / week) → significantly better balance and mobility, ↓ falls, ↓ LOS, ↓ readmissions
 - Average age: 84. large proportion of stroke but mixed w gen rehab
 - Intensity of practice: everyone has counters and practice sheets. Average / class: >400 reps of exercises that challenge balance

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- Communication Intensity
 - Observational behaviour mapping – people with and without aphasia compared and video-recorded on weekdays – 900 mins of activity
 - What were they doing / who were they with?
 - People with aphasia – significantly more time alone, significantly more time not communicating – WE CAN ALL DO BETTER AT THIS!!!!
 - Get patients to talk more, rather than talk ‘at’ them

Intensity of Practice After Stroke

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- Communication Strategies – CommunicateWA: WA consumer group – training carers / family / volunteers to create self-sustaining groups
- Help pts with aphasia
 - Short phrases / simple sentences ***Don't change inflection / volume!*
 - Emphasise key words
 - Gestures / real objects
 - Write key words – large writing
 - 1 topic, 1 page, spread out. 4-5 words / page\
 - BE HONEST – don't pretend to understand if you don't!
 - Give extra time
 - Clarify / check that you've understood
 - Yes / no / choice of 2 options
 - Encourage to persevere

Intensity of Practice After Stroke

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- More key messages...
 - Use external motivation – records of practice, video, counters, etc / quantify – length of time, number of reps, distance walked
 - HEPs – 3-5 exs, max!!!

“All minutes in rehab should be rehab minutes”

Thank you

