Additional Weekend Physiotherapy for In-patients Receiving Rehabilitation

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Introduction

• Background:
  – In 2003 the Angliss Hospital opened an additional 30 sub-acute beds bringing the total to 47
  – The original 17 beds had a 4 hour Saturday Physiotherapy service attached
  – When establishing the Allied Health EFT for the new beds we asked the question “What are the best practice guidelines for the provision of weekend Physiotherapy services in rehabilitation”
Introduction - continued

- Decided early on to combine the project with the research expertise at La Trobe University School of Physiotherapy, via a Master of Physiotherapy
- Completed a Systematic Review – Effect of Out of Business Hours Physiotherapy
- Use the strength and weaknesses from clinical trials within the SR to create the current research design
- Completed the 12 month clinical trial in 2005
- Able to integrate the research outcomes & recommendations into evidence based practice at the Angliss Hospital
The effect of additional Physiotherapy to hospital inpatients outside of regular business hours: A systematic review

Background:
- Effectiveness of Physiotherapy intervention has been demonstrated in many hospital settings
- Many studies have indicated that the intensity of intervention may positively affect some patient outcomes
- Great variability in intensity provided and model of service delivery, i.e. within/outside business hours
Systematic Review - continued

- Method:
  - Key words were searched from earliest possible time until May 2005
  - Use of the 8 electronic databases
  - Complimented with citation tracking and key author searches
  - Yield of 1006 papers identified 9 included papers
Systematic Review - continued

• Results:
  – 8 of the 9 papers reviewed LOS
  – Only 2 reporting overall reduction in LOS (ICU and Ortho Acute)
  – With another 2 reporting a reduction in LOS for subgroups (Acute Pelvic / Spine Trauma and Acute Non-surg Neuro)
• Limitations
  – 4 trials: LOS vs 3 trials: PTLOS, one paper both
  – 3 trials: "physiotherapy" not defined
  – 2 trials: baseline difference (age, gender, private health status, emerg vs elective)
  – 6 trials: used additional staffing resources, with the other two redistributing current resources
  – 6 trials: lack of random allocation, lack of blinding
Systematic Review - continued

• Conclusion of the SR
  – Unable to conclude that the provision of additional Physiotherapy made a significant improvement to patient outcomes for all in-patients
  – The need for quality research into Physiotherapy best practice service provision for hospital in-patients has been identified
Aims of the Current Study

- Primary aim: the effect of additional Saturday Physiotherapy on LOS and PTLOS
- Secondary aims: the effect on patient participation; discharge destination and QOL
  - Impairments; discharge mobility status
  - Body function; balance, strength and range of movement
  - Mortality and other adverse events
- A third aim will determine there is an effect relating to specific Case-mix and Rehabilitation Funding Tree (CRAFT) funding categories – specifically a cost benefit analysis
The Research Design

- RCT of additional Saturday Physiotherapy for adult rehabilitation in-patients
- Informed consent
- Outcomes of those who withdrew (ITT)
- Random allocation
- Blinded allocation officer
- Blinding of subjects
- Blinded assessors (admission / discharge / follow-up)
- Standardised Physiotherapy outcome measures
- Budget – financially supported by DoAH @ Angliss
The Intervention

• 5 vs 6 days of physiotherapy
  – Consistent interventions with the weekday model
  – The additional session is on the Saturday
  – Either a Neurological Physiotherapist (1:1) or Allied Health Assistant (2:1) via handover from the treating weekday Physiotherapist

• Nursing, medical and other multidisciplinary input remains the same for each participant
Results

- 262 participants randomised to M-F & M-S
- 281 excluded due to GEM / Cognition / Refused
- Age – NS difference: 76.6 years control, 77.0 years exp
- Male versus Female – NS difference: 58/74 control, 53/77 exp
- Co-morbidities – comparable between groups
- Baseline measures – comparable with NS difference: QOL, Gait, Balance, Function (FIM / MMAS)
Results - Continued

- Primary outcome measure (control / exp)
  - LOS – 3.2 day variation
    - 24.4 days (SD15.9) versus 21.2 days (SD14.0)
    - $p = .09$, results NS
  - PTLOS – 2.5 day variation
    - 22.1 days (SD14.0) versus 19.6 days (SD13.7)
    - $p = .15$, results NS
  - Power analysis
    - LOS: $ES = .21$, power analysis = 356 each gp
    - PTLOS: $ES = .18$, power analysis = 484 each gp
Results - Continued

• Secondary Outcome Measures
  – Significant change over time for:
    • QOL
    • Measures of Activity
    • Measures of Body Function
  – What about differences between groups?
    • No significant difference between groups for secondary outcomes including function / destination / adverse events
Results - Continued

• Sub group analysis – CRAFT categories
  – At the time of research hospital was paid per bed day
  – July 2007: Sub-acute @ Angliss moved from payment per bed-day to CRAFT funding
    • We have 12 relevant categories @ Angliss:
      – Based on diagnostic group
      – Further division based on Barthel score on admission
• Payment per admission, different amount per category
• Has an upper and lower LOS boundary
• Takes into account the State Av LOS
• Optimal funding for the Hospital is for patient LOS to be “within” the boundary
Results Continued

• Angliss Rehabilitation Centre in relation to the upper and lower LOS boundaries:
  – M-F: 5 over boundary, 4 within boundary, 3 under boundary
  – M-S: 2 over boundary, 7 within boundary, 3 under boundary

• This had implications 2 fold:
  – Firstly, it means more of the current admissions were receiving optimal funding
  – Secondly, it means more admissions per year are possible
Discussion

- In Australia – 100% of Major Acute Metro Hospitals had a weekend Physiotherapy service (Ntoumenopoulos & Greenwood, 1991)
- Nil published literature re. Australian hospital rehabilitation facilities
- 67% rehabilitation hospitals in America offer Saturday and or Sunday PT (Hooper & Dijkers, 1987)
• Economic & Health Outcome Evaluation
  - Based on 30 beds over 12 months
  - M-F LOS 24.4 Days – 448 admissions
  - M-S LOS 21.2 Days – 515 admissions
  - Possible 67 extra admissions over 12 months
  - These additional admissions would have a significant financial benefit under a payment per admission scheme (providing cap allowed for this)
  - Benefit estimated at $550,000 due to the additional admissions once the cost of Staff is removed
Discussion - Continued

- Secondary outcome measures
  - NS results between groups
  - Positive for both groups with respect to achieving an independent mobility status and high rate of return to home environment
  - Low rate of adverse events and mortality for both groups
  - So, if a Type I error and the 3.2 day variation is meaningful, discharge 3.2 day earlier does not compromise the secondary outcomes
• Conclusions
  - Reduction in LOS did not achieve statistical significance (p=0.09)
  - However, the results did demonstrate a clear trend to indicate that additional Saturday physiotherapy may reduce patient LOS
  - Maintained high return to independent mobility and home environment for both groups equally
  - With maintained effect size this may have important economic and clinical consequences
Where to now?! 

- Currently planning to continue research into the area including 2 recent Grant Applications for:
  - National Audit of Out of Business Hours Service Provision for Hospital Patients
  - Multi-centre Randomised Controlled Trial to examine the effect of Additional Saturday Physiotherapy and Occupational Therapy on Rehabilitation In-patients
Acknowledgements

• Research Team:
  – Prof. Nick Taylor, Dr. Nora Shield, Dr. Jenny Paratz

• Angliss Hospital Director of Allied Health:
  – Mr. Michael Butler

• Key Research Assistants
  – Ms. Kirsty Lytle, Ms. Julie Stevens, Ms. Melissa Elliott
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