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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”



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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



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Systematic Review

- 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



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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



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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)



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Systematic Review - continued

- 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



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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



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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



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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



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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



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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)



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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



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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



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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



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Results - Continued

- 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



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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



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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)



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Discussion - Continued

- 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



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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



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Conclusion

- 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



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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



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