Online supplement

Physical exercise during acute exacerbations of chronic obstructive pulmonary disease: Australian physiotherapy practice.

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Contents:
- Copy of the survey instrument
- List of hospitals included in the original mail distribution
AECOPD = acute exacerbation of COPD

ID: ________

The following questions relate to your background in physiotherapy.

1. How long have you been practicing as a physiotherapist? _______ years

2. How long have you been practicing in respiratory medicine? _______ years

3. Please indicate the highest level of education you have received:
   - Entry-level physiotherapy degree (e.g. Bachelors or equivalent +/- honours)
   - Postgraduate masters (clinical / coursework and/or research)
   - Clinical doctorate
   - PhD
   - Other (please specify): ______________________________

4. How important do you feel physical exercise is in the overall management of patients with AECOPD? Please tick one response only.
   - Very unimportant
   - Fairly unimportant
   - Moderately important
   - Fairly important
   - Very important

5. For approximately what % of patients (on average) with AECOPD do you prescribe physical exercise for the purpose of improving exercise tolerance and/or physical function? Please tick one response only.
   - 0 to <20%
   - 20 to <40%
   - 40 to <60%
   - 60 to <80%
   - 80 to 100%

6. On average, how much time per day would your patients with AECOPD spend performing physical exercise to optimise exercise tolerance and/or physical function? Please tick one response only.
   - 0 to 10 minutes
   - 10 to 20 minutes
   - 20 to 30 minutes
   - >30 minutes

The following questions relate to your practice within the AECOPD population.

7. In what environment do you perform physical exercise with patients with AECOPD? You may tick multiple responses if required.
   - On ward gym (group)
   - On ward gym (individual session)
   - Off ward gym (group)
   - Off ward gym (individual session)
   - Patient’s room (individual session)
8. Do you implement any of the following adjuncts during exercise training for the specific purpose of optimising physical exercise performance in patients with AECOPD? You may tick multiple responses if required.

- Breathing control exercises (e.g. relaxed breathing, pursed lips breathing)
- Bronchodilators
- Heliox
- Huff and/or cough
- Neuromuscular electrical stimulation
- Non-invasive ventilation (e.g. CPAP, BiPAP)
- Oxygen therapy
- Low-pressure positive expiratory pressure device (to prevent dynamic hyperinflation)
- Walking frame (e.g. 4-wheeled walker) for forward leaning +/- seated rest
- Other (please specify):

9. How important do you feel it is to target the following outcomes with physical exercise during AECOPD? Please indicate by placing a tick (✔) in the corresponding box. Please tick only one box for each outcome (horizontal row).

| Outcome                                | Very unimportant | Fairly unimportant | Moderately important | Fairly important | Very important |
|----------------------------------------|------------------|--------------------|----------------------|------------------|----------------|
| Aerobic capacity                       |                  |                    |                      |                  |                |
| Anxiety/depression                     |                  |                    |                      |                  |                |
| Balance                                |                  |                    |                      |                  |                |
| Daily activity                         |                  |                    |                      |                  |                |
| Flexibility                            |                  |                    |                      |                  |                |
| Gait speed                             |                  |                    |                      |                  |                |
| Health status / quality of life        |                  |                    |                      |                  |                |
| Lower limb endurance                  |                  |                    |                      |                  |                |
| Lower limb strengthening               |                  |                    |                      |                  |                |
| Respiratory symptoms (e.g. dyspnoea)   |                  |                    |                      |                  |                |
| Upper limb endurance                  |                  |                    |                      |                  |                |
| Upper limb strengthening               |                  |                    |                      |                  |                |
| Other (please specify):                |                  |                    |                      |                  |                |
10. How frequently do you prescribe the following specific modalities of physical exercise for patients with AECOPD? Please indicate by placing a tick (✓) in the corresponding box. Please tick only one box for each modality (horizontal row).

|                                | Very rarely or never | Rarely | Sometimes | Often | Very often or always |
|--------------------------------|----------------------|--------|-----------|-------|--------------------|
| **Whole-body aerobic**         |                      |        |           |       |                    |
| Cycling (exercise bike)        | ✓                    |        |           | ✓     | ✓                  |
| Treadmill walking              | ✓                    |        |           | ✓     | ✓                  |
| Non-treadmill walking          | ✓                    |        |           | ✓     | ✓                  |
| **Balance**                   |                      |        |           |       |                    |
| Balance retraining             | ✓                    |        |           | ✓     | ✓                  |
| **Flexibility**               |                      |        |           |       |                    |
| Range of motion exercises      | ✓                    |        |           | ✓     | ✓                  |
| Stretches                      | ✓                    |        |           | ✓     | ✓                  |
| **Lower limb endurance**      |                      |        |           |       |                    |
| Sit to stand                   | ✓                    |        |           | ✓     | ✓                  |
| Cycling (pedals)               | ✓                    |        |           | ✓     | ✓                  |
| **Lower limb strengthening**  |                      |        |           |       |                    |
| Equipment based exercises      | ✓                    |        |           | ✓     | ✓                  |
| Non-equipment based exercises  | ✓                    |        |           | ✓     | ✓                  |
| Neuromuscular electrical       | ✓                    |        |           | ✓     | ✓                  |
| stimulation                   |                      |        |           |       |                    |
| **Upper limb endurance**      |                      |        |           |       |                    |
| Arm ergometry / cranking       | ✓                    |        |           | ✓     | ✓                  |
| **Upper limb strengthening**  |                      |        |           |       |                    |
| Equipment based exercises      | ✓                    |        |           | ✓     | ✓                  |
| Non-equipment based exercises  | ✓                    |        |           | ✓     | ✓                  |
| **Other**                      |                      |        |           |       |                    |
| Whole-body vibration           | ✓                    |        |           | ✓     | ✓                  |
| Other (please specify):        | ✓                    |        |           | ✓     | ✓                  |
AECOPD = acute exacerbation of COPD

11. Please indicate which training modalities you typically use when prescribing physical exercise for patients with AECOPD and the method you adopt (e.g. interval training or continuous training)? Please indicate by placing a tick (✔) in the corresponding boxes (multiple responses allowed).

| Training Modality                        | Interval | Continuous | Don’t use |
|------------------------------------------|----------|------------|-----------|
| Aerobic training                         |    ☐     |    ☐      |    ☐      |
| Balance                                  |    ☐     |    ☐      |    ☐      |
| Flexibility                              |    ☐     |    ☐      |    ☐      |
| Functional training                      |    ☐     |    ☐      |    ☐      |
| Lower limb endurance                     |    ☐     |    ☐      |    ☐      |
| Lower limb strengthening                 |    ☐     |    ☐      |    ☐      |
| Upper limb endurance                     |    ☐     |    ☐      |    ☐      |
| Upper limb strengthening                 |    ☐     |    ☐      |    ☐      |
| Other (please specify):                  |    ☐     |    ☐      |    ☐      |

The following questions relate to your use of outcome measures in the AECOPD population.

12. How frequently do you objectively measure the following aspects of physical function in patients with AECOPD? Please indicate by placing a tick (✔) in the corresponding box. Please tick only one box for each domain (horizontal row).

| Physical Function                        | Very rarely or never | Rarely | Sometimes | Often | Very often or always |
|------------------------------------------|----------------------|--------|-----------|-------|----------------------|
| Aerobic capacity / exercise tolerance    |    ☐                 |    ☐   |    ☐      |    ☐  |    ☐                 |
| Balance                                  |    ☐                 |    ☐   |    ☐      |    ☐  |    ☐                 |
| Flexibility                              |    ☐                 |    ☐   |    ☐      |    ☐  |    ☐                 |
| Gait speed                                |    ☐                 |    ☐   |    ☐      |    ☐  |    ☐                 |
| General function                         |    ☐                 |    ☐   |    ☐      |    ☐  |    ☐                 |
| Lower limb endurance                     |    ☐                 |    ☐   |    ☐      |    ☐  |    ☐                 |
| Lower limb strength                      |    ☐                 |    ☐   |    ☐      |    ☐  |    ☐                 |
| Upper limb endurance                     |    ☐                 |    ☐   |    ☐      |    ☐  |    ☐                 |
| Upper limb strength                      |    ☐                 |    ☐   |    ☐      |    ☐  |    ☐                 |
| Other (please specify):                  |    ☐                 |    ☐   |    ☐      |    ☐  |    ☐                 |
13. How frequently do you use the following specific outcome measures for patients with AECOPD? Please indicate by placing a tick (✔) in the corresponding box. Please tick only one box for each outcome measure (horizontal row).

| Outcome Measure | Very rarely or never | Rarely | Sometimes | Often | Very often or always |
|-----------------|----------------------|--------|-----------|-------|----------------------|
| **Aerobic capacity/exercise tolerance** | | | | | |
| 3-minute walk test | ☐ | ☐ | ☐ | ☐ | ☐ |
| 6-minute walking distance | ☐ | ☐ | ☐ | ☐ | ☐ |
| Cardiopulmonary Exercise Test (CPET) | ☐ | ☐ | ☐ | ☐ | ☐ |
| Endurance shuttle test | ☐ | ☐ | ☐ | ☐ | ☐ |
| Incremental shuttle test | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Balance** | | | | | |
| Berg balance test | ☐ | ☐ | ☐ | ☐ | ☐ |
| CTSIB | ☐ | ☐ | ☐ | ☐ | ☐ |
| Functional reach test | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Gait speed** | | | | | |
| 4-metre gait speed test | ☐ | ☐ | ☐ | ☐ | ☐ |
| 10-metre gait speed test | ☐ | ☐ | ☐ | ☐ | ☐ |
| **General function** | | | | | |
| Glittre test | ☐ | ☐ | ☐ | ☐ | ☐ |
| Timed up and go | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Lower limb endurance** | | | | | |
| Sit-to-stand test | ☐ | ☐ | ☐ | ☐ | ☐ |
| Step test (e.g. Chester, MIST) | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Lower limb strength** | | | | | |
| Manual MVC (Oxford scale) | ☐ | ☐ | ☐ | ☐ | ☐ |
| Equipment-based MVC (e.g. dynamometer) | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Upper limb endurance** | | | | | |
| 6-min pegboard & ring test | ☐ | ☐ | ☐ | ☐ | ☐ |
| Grocery shelving task | ☐ | ☐ | ☐ | ☐ | ☐ |
| Unsupported upper limb exercise test | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Upper limb strength** | | | | | |
| Manual MVC (Oxford scale) | ☐ | ☐ | ☐ | ☐ | ☐ |
| Equipment-based MVC (e.g. dynamometer) | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Other** | | | | | |
| Other (please specify): | ☐ | ☐ | ☐ | ☐ | ☐ |
AECOPD = acute exacerbation of COPD

14. For what purpose(s) do you perform objective outcome measurement of physical function in patients with AECOPD? You may tick multiple responses if required.
- To assist in the diagnosis of COPD
- To define a patient’s baseline
- To stage the disease/assess prognosis
- To assess safety
- To inform exercise prescription
- To assess response to treatment
- To establish dosage of physical exercise
- To monitor patient progress
- To screen for post-discharge programs (e.g. pulmonary rehabilitation)
- For research and data collection
- For quality assurance requirements
- Other (please specify):

The following questions relate to your practice of monitoring physical activity and sedentary behaviour of patients with AECOPD.

15. How frequently do you monitor physical activity and/or sedentary behaviour levels of patients with AECOPD, via the following methods?
Please indicate by placing a tick (✔) in the corresponding box. Please tick only one box for each method (horizontal row).

| Method                          | Very rarely or never | Rarely | Sometimes | Often | Very often or always |
|--------------------------------|----------------------|--------|-----------|-------|----------------------|
| **During hospital**            |                      |        |           |       |                      |
| Direct observation             | □                    | □      | □         | □     | □                   |
| Surveys                        | □                    | □      | □         | □     | □                   |
| Pedometers                     | □                    | □      | □         | □     | □                   |
| Physical activity monitors     | □                    | □      | □         | □     | □                   |
| Mobile ‘apps’                   | □                    | □      | □         | □     | □                   |
| Other (please specify):        | □                    | □      | □         | □     | □                   |
| **After discharge**            |                      |        |           |       |                      |
| Direct observation             | □                    | □      | □         | □     | □                   |
| Surveys                        | □                    | □      | □         | □     | □                   |
| Pedometers                     | □                    | □      | □         | □     | □                   |
| Physical activity monitors     | □                    | □      | □         | □     | □                   |
| Mobile ‘apps’                   | □                    | □      | □         | □     | □                   |
| Telehealth                      | □                    | □      | □         | □     | □                   |
| Other (please specify):        | □                    | □      | □         | □     | □                   |
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**16. How frequently do you formally prescribe physical activity for your patients with AECOPD via the following methods?**
Please indicate by placing a tick (✔) in the corresponding box. Please tick only one box for each method (horizontal row).

| Method                                      | Very rarely or never | Rarely | Sometimes | Often | Very often or always |
|---------------------------------------------|----------------------|--------|-----------|-------|---------------------|
| **During hospital**                         |                      |        |           |       |                     |
| Verbal / written advice                     |                      |        |           |       |                     |
| Physical activity program                   |                      |        |           |       |                     |
| **Upon discharge**                          |                      |        |           |       |                     |
| Verbal / written advice                     |                      |        |           |       |                     |
| Home-based physical activity program        |                      |        |           |       |                     |

The following questions relate to your referral and discharge processes for patients with AECOPD.

**17. Is physiotherapy care (or pulmonary rehabilitation) routine**ly instigated as part of a standardised procedure (e.g. a ‘care bundle’) at your hospital:

- **Upon admission?**
  - Yes
  - No
  - Unsure

- **Upon discharge?**
  - Yes
  - No
  - Unsure

**18. How frequently is the recovery of patients’ physical function monitored after hospitalisation for AECOPD?**

- Very rarely or never
- Rarely
- Sometimes
- Often
- Very often or always

**19. Is physiotherapy evaluation during post-discharge outpatient clinic appointments offered at your hospital?**

- Yes
- No
- Unsure

**20. How often would patients with AECOPD at your hospital be referred to pulmonary rehabilitation after an acute exacerbation?**

- Very rarely or never
- Rarely
- Sometimes
- Often
- Very often or always
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21. How important do you consider the following factors to be when deciding whether to refer patients with AECOPD for follow up physiotherapy (including pulmonary rehabilitation) for improvement in physical function? Please indicate by placing a tick (✔) in the corresponding box. Please tick only one box for each factor (horizontal row).

| Factor                                      | Very unimportant | Fairly unimportant | Moderately important | Fairly important | Very important |
|---------------------------------------------|------------------|--------------------|----------------------|------------------|----------------|
| Functional status                           | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Exacerbation severity                       | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Financial costs                             | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Frailty                                     | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Geography                                   | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Health insurance                            | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Health literacy                             | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Quality of life                             | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Illness perception                          | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Need for home oxygen                        | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Patient preferences                         | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Phenotype (e.g. frequent exacerbator)        | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Physical activity levels                    | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Referral processes and pathways              | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Risk factors for deterioration              | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Smoking status                              | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Social supports                             | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Symptom severity                            | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Transport to attend therapy                 | ☐                | ☐                  | ☐                    | ☐                | ☐             |
| Other (please specify):                     | ☐                | ☐                  | ☐                    | ☐                | ☐             |

Thank you very much for taking the time to complete this survey.

Please return this survey to the investigators via the accompanying stamped addressed envelope.
| Hospital                                      | State |
|---------------------------------------------|-------|
| Canberra Hospital & Health Services         | ACT   |
| Calvary Public Hospital                      | ACT   |
| St Vincent's Hospital Sydney                 | NSW   |
| Prince of Wales Hospital                     | NSW   |
| Royal Prince Alfred Hospital                 | NSW   |
| Royal North Shore Hospital                   | NSW   |
| Hornsby Ku-Ring-Gai Hospital                 | NSW   |
| Manly Hospital                               | NSW   |
| Mona Vale Hospital                           | NSW   |
| Ryde Hospital                                | NSW   |
| Concord Repatriation General Hospital        | NSW   |
| Auburn Hospital                              | NSW   |
| Westmead Hospital                            | NSW   |
| Blacktown Hospital                           | NSW   |
| Liverpool Hospital                           | NSW   |
| Fairfield Hospital                           | NSW   |
| Canterbury Hospital                          | NSW   |
| Bankstown Lidcombe Hospital                  | NSW   |
| St George Hospital                           | NSW   |
| Sutherland Hospital                          | NSW   |
| Gosford Hospital                             | NSW   |
| Wyong Hospital                               | NSW   |
| Calvary Mater Newcastle                      | NSW   |
| John Hunter Hospital                         | NSW   |
| Maitland Hospital                            | NSW   |
| Tamworth Hospital                            | NSW   |
| Manning Base Hospital                        | NSW   |
| Port Macquarie Base Hospital                 | NSW   |
| Coffs Harbour Hospital                       | NSW   |
| Grafton Base Hospital                        | NSW   |
| Lismore Base Hospital                        | NSW   |
| The Tweed Hospital                           | NSW   |
| Wollongong Hospital                          | NSW   |
| Shellharbour Hospital                        | NSW   |
| Shoalhaven District Memorial Hospital        | NSW   |
| Campbelltown Hospital                        | NSW   |
| Goulburn Base Hospital                       | NSW   |
| Albury Wodonga Health, Albury Campus         | NSW   |
| Wagga Wagga Base Hospital                    | NSW   |
| Nepean Hospital                              | NSW   |
| Hawkesbury District Health Service           | NSW   |
| Mount Druitt Hospital                        | NSW   |
| Bathurst Base Hospital                       | NSW   |
| Orange Health Service                        | NSW   |
| Rockhampton Base Hospital                    | QLD   |
| Mackay Base Hospital                         | QLD   |
| The Townsville Hospital                      | QLD   |
| Mount Isa Hospital                           | QLD   |
| Cairns Base Hospital                         | QLD   |
| Royal Adelaide Hospital                      | SA    |
| The Queen Elizabeth Hospital                 | SA    |
| Repatriation General Hospital                | SA    |
| Flinders Medical Centre                      | SA    |
| Modbury Hospital                             | SA    |
| Lyell McEwin Hospital                        | SA    |
| Mount Gambier and Districts Health Service   | SA    |
| Royal Hobart Hospital                        | TAS   |
| Launceston General Hospital                  | TAS   |
| Mersey Community Hospital                    | TAS   |
| North West Regional Hospital                 | TAS   |
| The Alfred                                   | VIC   |
| Western Hospital                             | VIC   |
| Sunshine Hospital                            | VIC   |
| Mercy Public Hospital Inc.                   | VIC   |
| Royal Melbourne Hospital                     | VIC   |
| St Vincent's Hospital                        | VIC   |
| The Northern Hospital                        | VIC   |
| Austin Hospital                              | VIC   |
| Mercy Hospital for Women                     | VIC   |
| Box Hill Hospital                            | VIC   |
| Maroondah Hospital                           | VIC   |
| Angliss Hospital                             | VIC   |
| Moorabbin Hospital                           | VIC   |
| Monash Medical Centre                        | VIC   |
| Dandenong Hospital                           | VIC   |
| Sandringham & District Memorial Hospital     | VIC   |
| Frankston Hospital                           | VIC   |
| University Hospital Geelong                  | VIC   |
| Camperdown Hospital                          | VIC   |
| Warrnambool Base Hospital                    | VIC   |
| Ballarat Base Hospital                       | VIC   |
| Wimmera Base Hospital                        | VIC   |
| Mildura Base Hospital                        | VIC   |
| Bendigo Health Care Group [Anne Caudle Centre] | VIC   |
| Bendigo Health Care Group [Bendigo Hospital] | VIC   |
| Goulburn Valley Health                       | VIC   |
| Northeast Health Wangaratta                  | VIC   |
| Albury Wodonga Health, Wodonga Campus        | VIC   |
| Hospital                        | State  |
|--------------------------------|--------|
| Dubbo Base Hospital            | NSW    |
| Royal Darwin Hospital          | NT     |
| Alice Springs Hospital         | NT     |
| Redcliffe Hospital             | QLD    |
| Royal Brisbane & Women's Hospital | QLD   |
| The Prince Charles Hospital    | QLD    |
| Mater Adult Hospital           | QLD    |
| Princess Alexandra Hospital    | QLD    |
| Queen Elizabeth II Jubilee Hospital | QLD |
| Logan Hospital                 | QLD    |
| Redland Hospital               | QLD    |
| Gold Coast Hospital            | QLD    |
| Robina Hospital                | QLD    |
| Ipswich Hospital               | QLD    |
| Toowoomba Hospital             | QLD    |
| Caboolture Hospital            | QLD    |
| Nambour General Hospital       | QLD    |
| Hervey Bay Hospital            | QLD    |
| Bundaberg Base Hospital        | QLD    |

| Hospital                                   | State  |
|--------------------------------------------|--------|
| Casey Hospital                             | VIC    |
| West Gippsland Hospital                    | VIC    |
| Latrobe Regional Hospital                  | VIC    |
| Central Gippsland Health Service, Sale     | VIC    |
| Central Gippsland Health Service, Maffra   | VIC    |
| Bairnsdale Regional Health Service         | VIC    |
| Royal Perth Hospital                       | WA     |
| Sir Charles Gairdner Hospital              | WA     |
| Joondalup Health Campus                    | WA     |
| Swan District Hospital                     | WA     |
| Armadale-Kelmscott Memorial Hospital       | WA     |
| Fremantle Hospital                         | WA     |
| Rockingham General Hospital                | WA     |
| Peel Health Campus                         | WA     |
| Bunbury Hospital                           | WA     |
| Albany Hospital                            | WA     |
| Geraldton Hospital                         | WA     |
| Broome Hospital                            | WA     |