



# 早期活動介入 是否可減少肺炎病人 住院天數與死亡率？

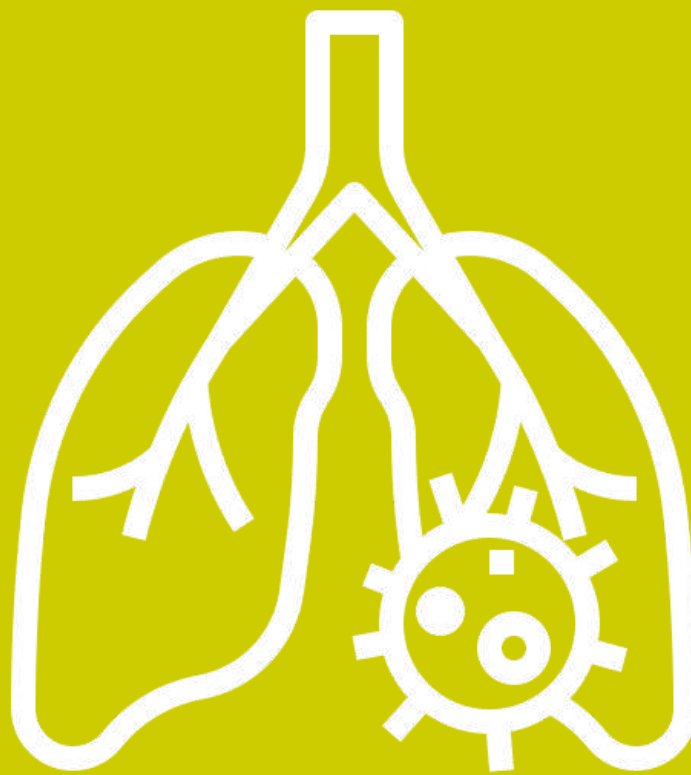
## 參考文獻：

Larson, T., Lee, A., Brooks, D., Michieli, S., Robson, M., Veens, J., Vokes, O., & Lucy, D. (2019). Effect of early mobility as a physiotherapy treatment for pneumonia: A systematic review and meta-analysis. *Physiotherapy Canada*, 71(1), 82-89. <https://doi.org/10.3138/ptc.2017-51.ep>

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報告日期：2021/12/21

# 前言



- 統計107年至109年本病房住院診斷以肺炎第一名，約佔43.2%~45.7%
- 肺炎病人亦佔全院疾病診斷第一名

# 前言



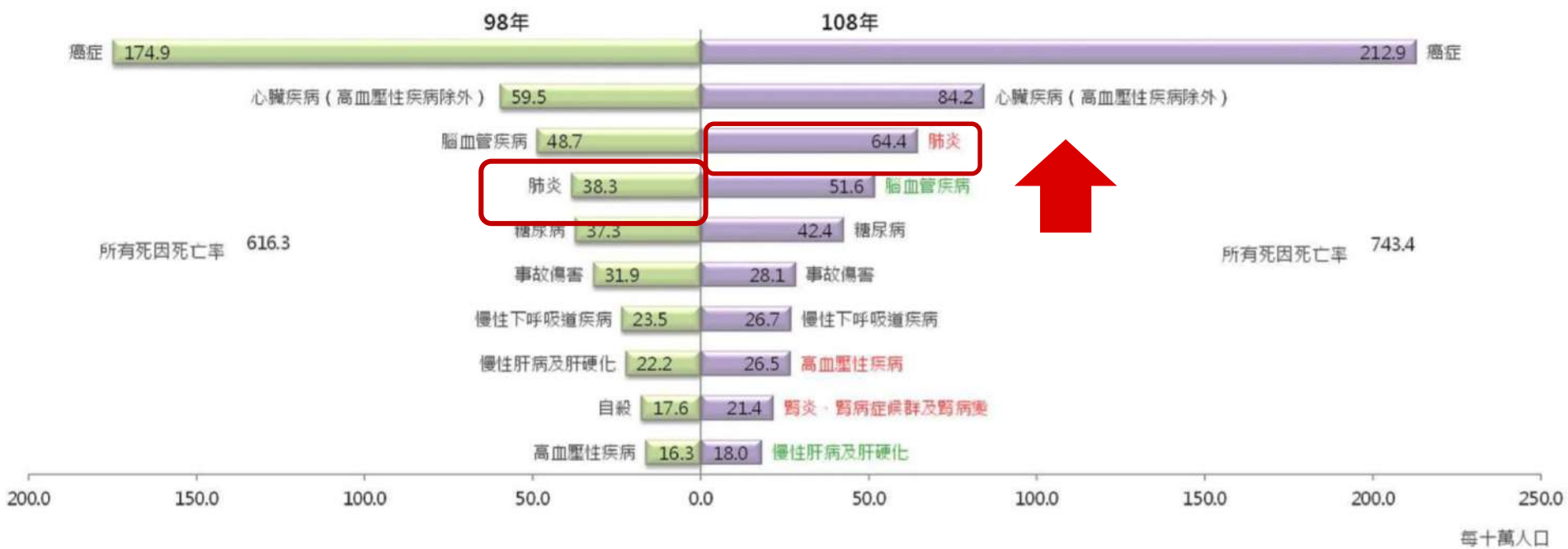
說明：98-107 年係指「經轉換比值調整後值」，非原發布數。

圖片自衛生福利部108年死因統計結果分析



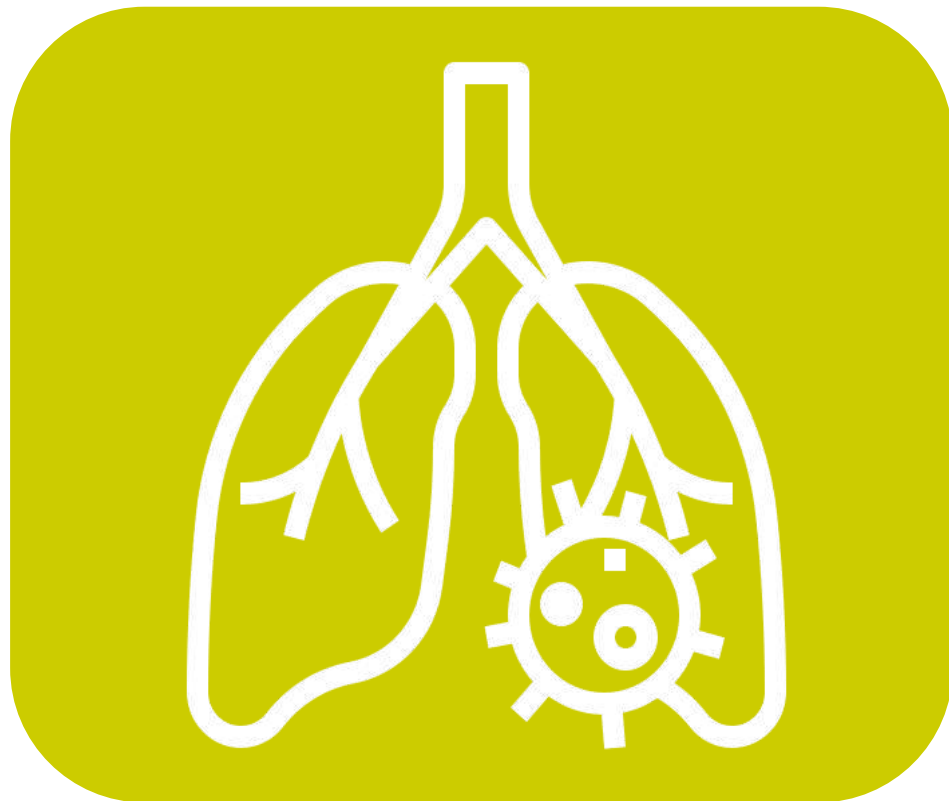
# 前言

十大死因死亡率-108 年 vs. 98 年



圖片自 衛生福利部108年死因統計結果分析

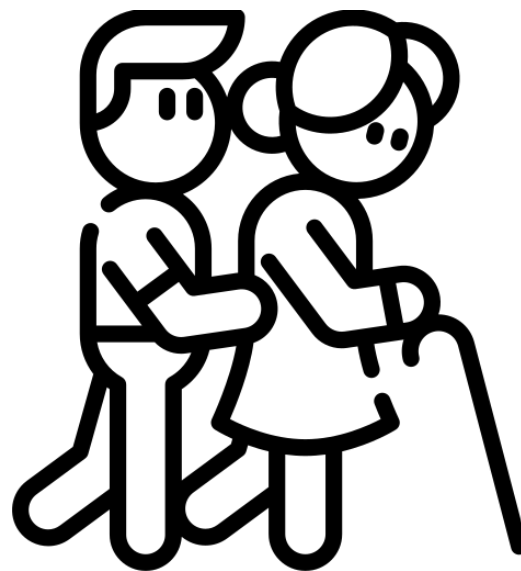
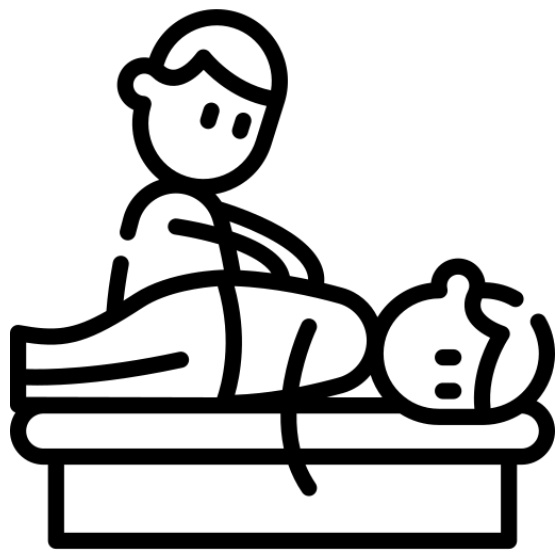
## 前言-關於肺炎



- 肺炎主要是肺臟受到細菌、病毒等微生物感染，使肺泡內充滿發炎物質
- 當肺臟受損時會增加死腔面積，出現嚴重缺氧和呼吸性酸中毒而引起呼吸衰竭

(王桂芸等，2014)

## 前言-肺炎照護



- 照護上著重：維持呼吸道通暢、預防肺擴張不全、幫助痰排除
- 背部扣擊、教導有效深呼及咳嗽、鼓勵提早下床活動

( Hudson A et al., 2017)

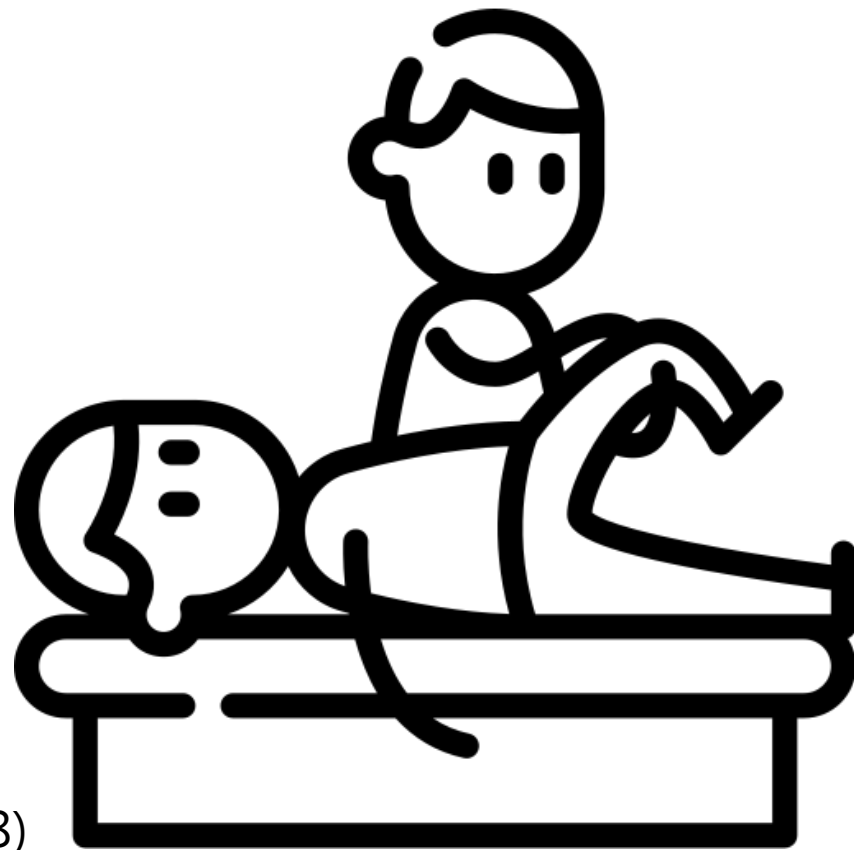


## 前言-早期活動介入

復健的目標：

增加整體的功能性能力及修復其呼吸生理功能，**越早介入對於臥床所引起的肌肉無力及生活功能下降的治療效果越好**

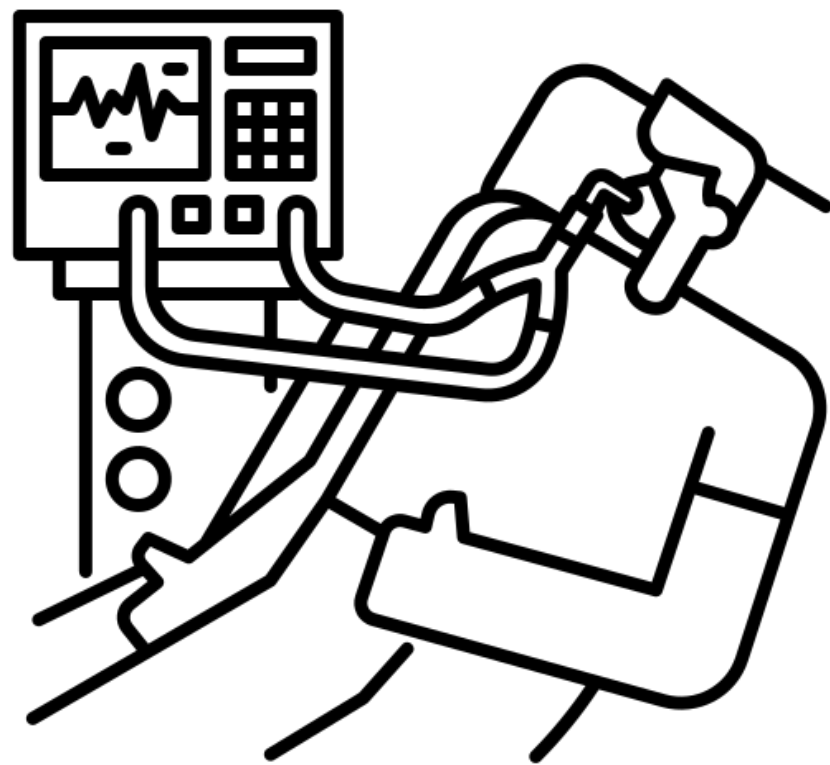
(吳英黛等，2008)



## 前言-早期活動介入

早期下床活動及復健介入對使用呼吸器病人，可有效改善移除呼吸器所需時間

(黃惠美等，2018)





# 前言



針對肺炎個案給予早期介入措施，以期早期復原、早期出院





## 前言- 現況

# ERP全人醫療跨域整合照護-肺炎

## Enhanced recovery program- ERP



# 肺炎ERP進行

- 109年6月開始啟動
- 由醫療科、護理部、營養室、藥劑部、呼吸治療室、復健科共同參與
- 收案條件:年滿18歲之成年人及社區型肺炎診斷
- 排除條件:傳染性疾病、生命徵象不穩、使用氣切及呼吸器、安寧緩和末期病人
- 每週固定時段會由主治醫師與團隊共同查房，進行個案討論
- 各團隊列出該團隊的指標，每月進行分析與討論



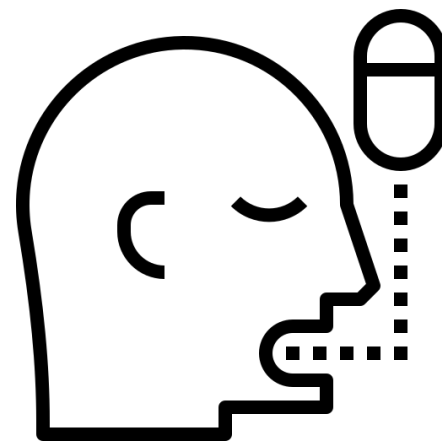
# 肺炎ERP-復健



職能治療



物理治療



語言治療

# 復健面指標

非長期臥床病人復健以增進功能為主

長期臥床病人目標為維持及衛教

項目	年度	閾值	1月	2月	3月	4月	5月	6月	7月	8月	9月	10月	11月	12月	總數/ 平均
復健目標達成率	110	>80%	64%	86%	71%	81%	-	-	-	-	-	-	-		75.5%
	109		-	-	-	-	-	94.3%	93.1%	84.5%	82%	84%	83%	88%	87%
總收案量	110		8	11	12	14	-	-	-	-	-	-	-		45
	109		-	-	-	-	-	13	13	15	19	19	17	24	120
非長期臥床病人	110		2	3	7	3	-	-	-	-	-	-	-		15
	109							5	4	5	7	2	7	4	34

資料自10B病房

分子：病人完成復健科會診總數  
分母：收案病人總數



# 監測指標

項目	定義	閾值	一月	二月	三月	四月	五月	六月	七月	八月	九月	十月	十一月	十二月	總計
14日內再入院率	分子：病人完成治療後14日內相同診斷再住院總數	<3%	10% (1/10)	9.1% (1/11)	15.4% (2/13)	13% (2/15)	-	-	-	-	-	-	-	-	12.2% (6/49)
	分母：收案病人當月出院總數		-	-	-	-	-	0 (0/9)	6.7% (1/15)	20% (2/10)	15% (3/20)	5.6% (1/18)	5.9% (1/17)	8.0% (2/25)	8.8% (10/114)
平均住院日數	分子：收案病人當月出院總住院日數	<12天	13.9	10.5	12.3	14.3	-	-	-	-	-	-	-	-	12.8
	分母：收案病人當月出院人次		-	-	-	-	-	13.9	15.9	10.0	17.9	13.0	17.2	14.9	15.1
死亡率	分子：病人死亡數	<5 %	0% (0/10)	18.2% (2/11)	7.7% (1/13)	0% (0/15)	-	-	-	-	-	-	-	-	(3/49)
	分母：收案病人當月出院人次		-	-	-	-	-	11.1% (1/9)	0% (0/15)	0% (0/10)	0% (0/20)	0% (0/18)	5.9% (1/14)	8.0% (2/25)	3.5% (4/114)
出院3天內重返急診率	分子：當月出院收案病人3天內重返急診		20% (2/10)	0% (0/11)	0% (0/13)	0% (0/15)	-	-	-	-	-	-	-	-	9.5% (2/49)
	分母：當月出院收案之病人人次		-	-	-	-	-	-	-	-	-	-	-	-	-

平均住院天數大於閾值



# 前言



早期活動介入  
是否可減少肺炎病人  
住院天數與死亡率？



# Effect of Early Mobility as a Physiotherapy Treatment for Pneumonia: A Systematic Review and Meta-Analysis

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Physiotherapy Canada  
Impact Factor : 1.037

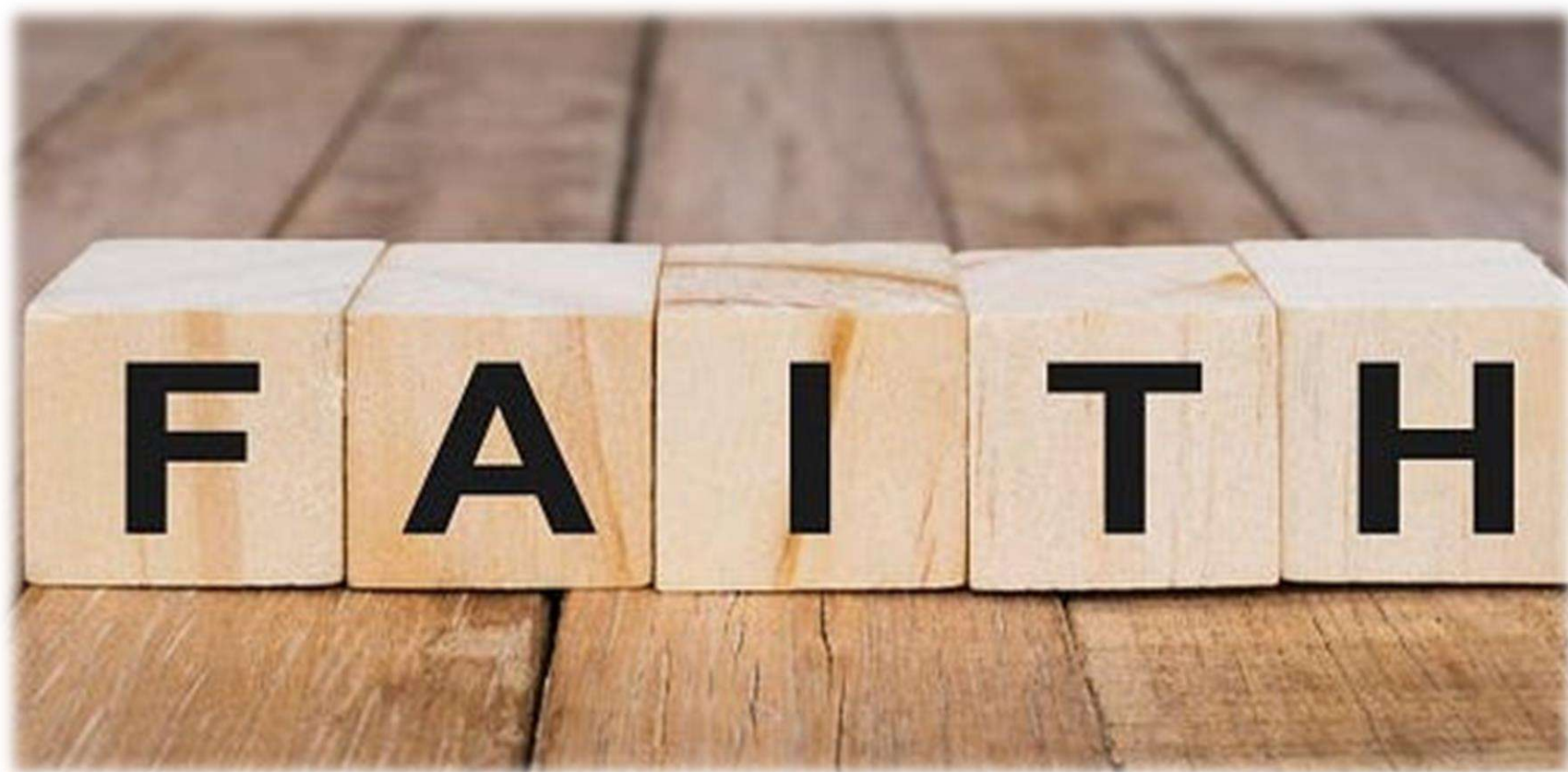
## Abstract

**Purpose:** We conducted a systematic review of the effect of early mobility on length of stay (LOS), mortality, and clinical outcomes as a treatment for adults hospitalized with pneumonia. **Method:** An electronic search of four databases was conducted. Inclusion criteria were (1) acute medical condition of pneumonia in adults and (2) early mobility intervention. Quality appraisal was conducted using the Physiotherapy Evidence Database scale and the Newcastle-Ottawa Scale. **Results:** Four studies (three randomized controlled trials and one retrospective cohort study) met the inclusion criteria. Meta-analysis demonstrated that early mobility did not reduce the risk of mortality compared with usual care (risk ratio 0.9 [95% CI: 0.27, 2.97];  $p = 0.86$ ) but did reduce the mean LOS (−1.1 days [95% CI: 2.21, −0.04];  $p = 0.04$ ). Early mobility also did not affect the rate of hospital readmissions or emergency department visits. One study demonstrated an improvement in functional exercise capacity and quality of life related to physical function and faster completion of a measure of activities of daily living. **Conclusions:** Early mobility reduced LOS in adults hospitalized with community-acquired pneumonia, although there was no effect on mortality or rate of hospital readmissions. Further research is needed to determine the effect of early mobility in this population and establish guidelines.

**Key Words:** early mobilization, hospitalization, pneumonia, treatment, systematic review







## 研究探討的問題

- P : Pneumonia Patient
- I : Early Mobility
- C : Usual care
- O : Length of stay OR Mortality



# FAITH評讀

研究是否找到 (Find) 所有的相關證據？

## METHODS

### Search strategy

We conducted an electronic search of PUBMED, CINAHL, MEDLINE, and EMBASE for studies published before July 2015. An updated search was performed in January 2017. Keywords used were pneumonia AND adult AND treatment AND hospital OR ICU or CCU or critical care OR acute care or intensive care AND physical therapy OR physiotherapy OR rehabilitation. An example of the completed search strategy on PUBMED is included in the Appendix.

P.83





### METHODS

#### Inclusion criteria

We considered randomized controlled trials (RCTs) and observational studies that compared an in-patient-based early mobility intervention with a control treatment. All participants were adults (aged 17 y or older) and were diagnosed with an acute medical condition of community-acquired pneumonia but were not intubated or ventilated. *Early mobility* was defined as movement out of bed, with a change from the horizontal to the upright position for at least 20 minutes during the first 24 hours after hospitalization; this definition is consistent with guidelines for managing complicated pneumonia,<sup>21</sup> with movement progressing each subsequent day during hospitalization.<sup>23</sup> The word *early* reflects recommendations that mobility be initiated immediately after physiological stabilization in acutely ill patients with the requisite cognitive function and that early mobilization activities need to be sufficient to challenge the cardiopulmonary, musculoskeletal, and neuromuscular systems.<sup>18,20</sup>

#### Exclusion criteria

We excluded studies in which participants had been diagnosed with acute medical conditions other than pneumonia, including pulmonary embolism, pleural effusion, pneumothorax, congestive heart failure, lung neoplasm, acute respiratory distress syndrome, lung abscess, acute respiratory failure, acute bronchitis, chest trauma (including rib fractures), and acute myocardial infarction. We also excluded studies if they had not been published in English and if they included physiotherapy interventions administered to patients only in a recumbent position.

# FAITH評讀

研究是否找到 (Find) 所有的相關證據？

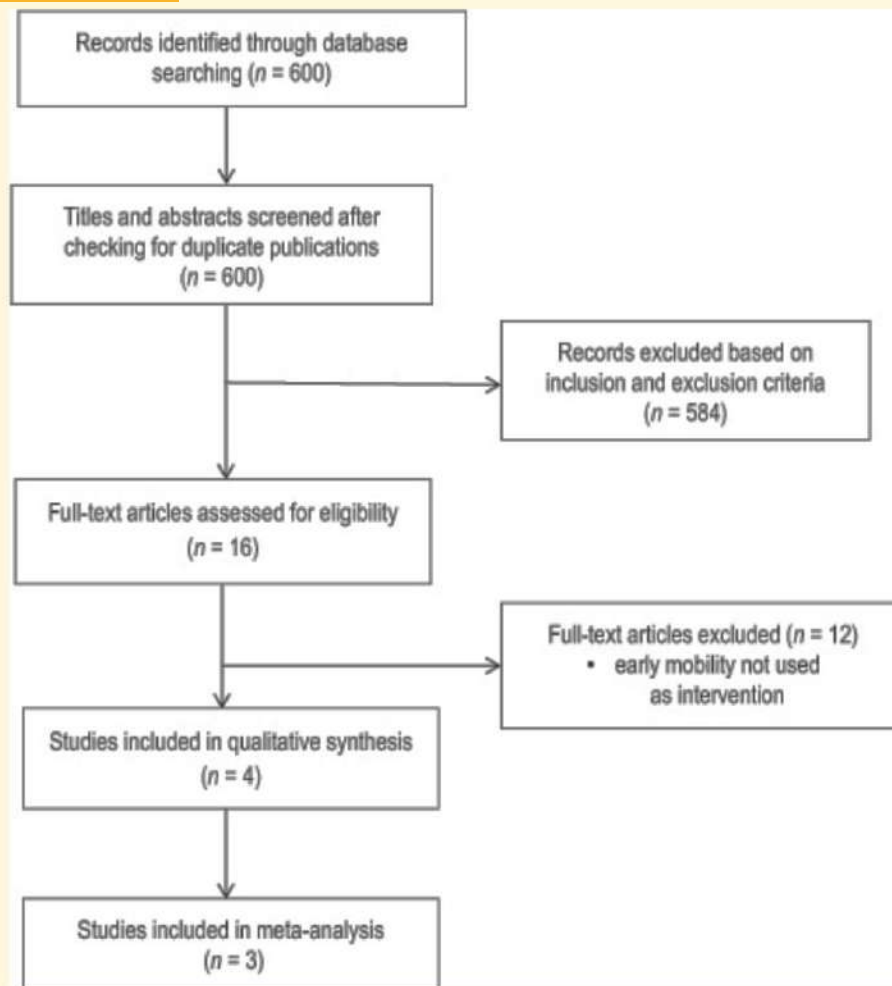


Figure 1

Flowchart of studies undergoing review.

評讀結果：●是 ○否 ○不清楚

### METHODS

#### Selection of studies and data extraction

Two groups of two reviewers each (MR and JV, OV and SM) independently assessed abstracts, full text, or both as necessary to identify relevant articles on the basis of the specified inclusion and exclusion criteria. Kappa values were calculated to determine interrater agreement for the included and excluded studies. Any discrepancies between the reviewers in a group were resolved by another independent reviewer (TL). Data for participant description, intervention description, severity and type of pneumonia, and outcome measures were extracted using a standardized template.

#### Assessment of risk of bias

Two independent reviewers conducted quality appraisal on the selected studies on the basis of the Physiotherapy Evidence Database (PEDro) scale (for the RCTs)<sup>24</sup> or the Newcastle-Ottawa Scale (for the non-randomized studies).<sup>25</sup> The Newcastle-Ottawa Scale contains eight items categorized into three dimensions of selection, comparability, and outcome, with scores ranging from 0 to 9.<sup>25</sup> Any differences were resolved by another independent reviewer (TL).



### METHODS

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P.83

# FAITH評讀

是否只納入(Included)具良好效度的文章？

## RESULT

Table 2

Detailed PEDro Scores for Included Randomized Clinical Trials

Study	Random allocation	Concealed allocation	Groups similar at baseline	Participant blinding	Therapist blinding	Assessor blinding	< 15% dropouts	Intention-to-treat analysis	Between-group difference reported	Point estimate and variability reported	Total (0–10)
Mundy et al. <sup>23</sup>	Y	N	Y	Y	N	Y	Y	Y	Y	Y	8
Carratala et al. <sup>29</sup>	Y	Y	Y	N	N	N	Y	Y	Y	Y	7
Jose & Dal Corso <sup>28</sup>	Y	Y	Y	N	N	N	Y	Y	Y	Y	7

PEDro = Physiotherapy Evidence Database; Y = yes; N = no.



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評讀結果：●是 ○否 ○不清楚





### RESULT

**Table 1** Study Characteristics and Outcome Comparisons between Groups

Study	Participants	Intervention	Outcome comparisons
Randomized clinical trials			
Mundy et al. <sup>23</sup>	<p><i>n</i> = 458 (44% male)</p> <p>Age, range, min–max: 17–103 y</p> <p>Pneumonia criteria: new infiltrate on CXR and 1 major criterion (cough, sputum, temperature &gt;37.8°C) or 2 minor criteria (pleuritic chest pain, dyspnoea, altered mental status, pulmonary consolidation on examination, leukocyte count &gt;12,000/μL)</p>	<p>Experimental: early mobility (movement out of bed, with a change from horizontal to upright position, for at least 20 min during the first 24 h of hospitalization, with progressive movement each d)</p> <p>Control: usual care</p>	<p>LOS: reduced with early mobility compared with usual care (mean 5.8 vs. 6.9 d)</p> <p>Mortality (hospital and 90 d): no difference (hospital: 2.2% vs. 3.9%; 90 d: 9.7% vs. 8.7%)</p> <p>Hospital re-admission: no difference</p> <p>Emergency visits (30 d and 90 d): no difference</p>
Carratala et al. <sup>29</sup>	<p><i>n</i> = 401 (35% male)</p> <p>Age, range, min–max: 18–97 y</p> <p>Pneumonia criteria: infiltrate on chest radiograph plus ≥1 of fever (≥38.0°C) or hypothermia (&lt;35.0°C), new cough ± sputum production, pleuritic chest pain, dyspnoea, altered breath sounds on auscultation</p>	<p>Experimental: early mobility (movement out of bed, with a change from horizontal to upright position, for at least 20 min during the first 24 h of hospitalization, with progressive movement each d)</p> <p>Control: usual care</p>	<p>LOS: reduced with early mobility compared with usual care (median 3.9 d vs. 6.0 d; mean difference 2.1 (95% CI: –2.7, –1.7); <i>p</i> &lt; 0.001)</p> <p>Mortality: no difference</p> <p>Hospital re-admission (30 d): no difference</p>

# FAITH評讀

## 是否以表格和圖表總結(Total up)試驗結果？

### RESULT

Jose & Dal Corso<sup>28</sup>  $n = 49$  (55% male)  
Age: mean 55 (SD 20) y  
Pneumonia criteria: diagnosis of community-acquired pneumonia according to consensus guidelines\*

Experimental: mobility training (warm up, stretching, resistance exercises, aerobic walking training) 50 min/d  $\times$  8 d  
Control: usual care: 50 min/d  $\times$  8 d

LOS: no difference in median (IQR) d (mobility: 12 [10–18] d; usual care: 13 [11–25] d)  
Glitter Activities of Daily Living test: mean (SD) time improved more with mobility training (52 [SD 40] sec) than with usual care (12 [SD 26] sec)  
ISWT distance: mean (SD) distance improved more with mobility training than with usual care (162 [SD 110] min vs. 33 [SD 71] min)  
Dyspnoea: decreased more in mobility training than in usual care group (mean difference  $-0.9$  [95% CI:  $-1.4$ ,  $-0.4$ ])  
SF-36: “physical functioning” domain improved more for mobility group (mean difference 14 points [95% CI: 1, 28]); no difference in any other domain

#### Retrospective cohort study

Momosaki et al.<sup>30</sup>  $n = 68,584$  (50% male)  
Population: frail elderly  
Age: mean 85 (SD 7) y  
Pneumonia criteria: diagnosis of aspiration pneumonia according to *International Statistical Classification of Diseases*

Experimental: early rehabilitation by physical therapists (early ambulation, strengthening and endurance exercises initiated within 3 d of admission and done for at least 7 d)  
Control: no rehabilitation

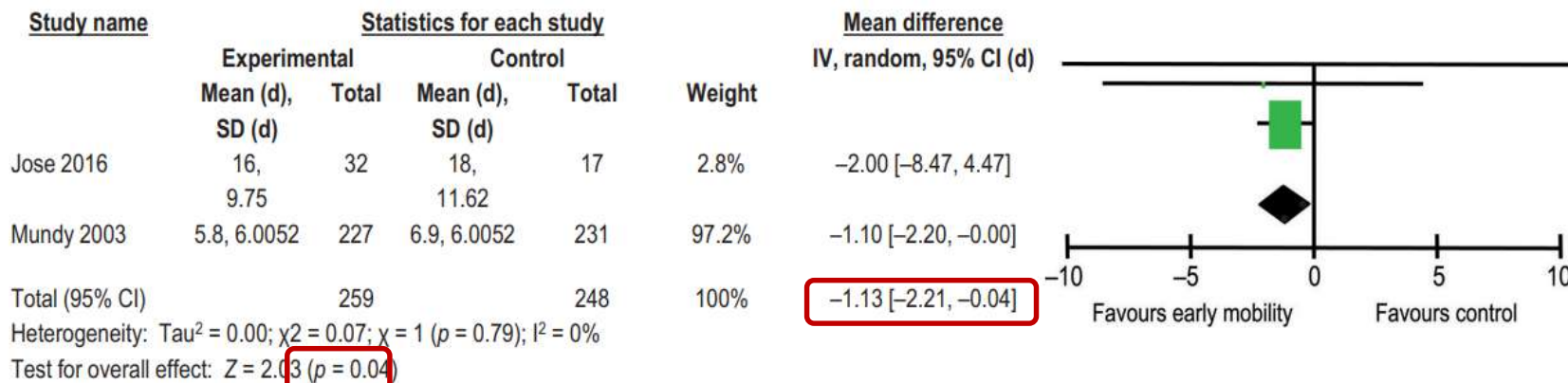
LOS: increased in early vs. no-rehabilitation group (mean 34.2 [SD 34.5] d vs. 26.2 [SD 37.4] d;  $p < 0.001$ )  
Mortality (hospital 30 d): lower in early vs. no-rehabilitation group (5.1% vs. 7.1%;  $p < 0.001$ )



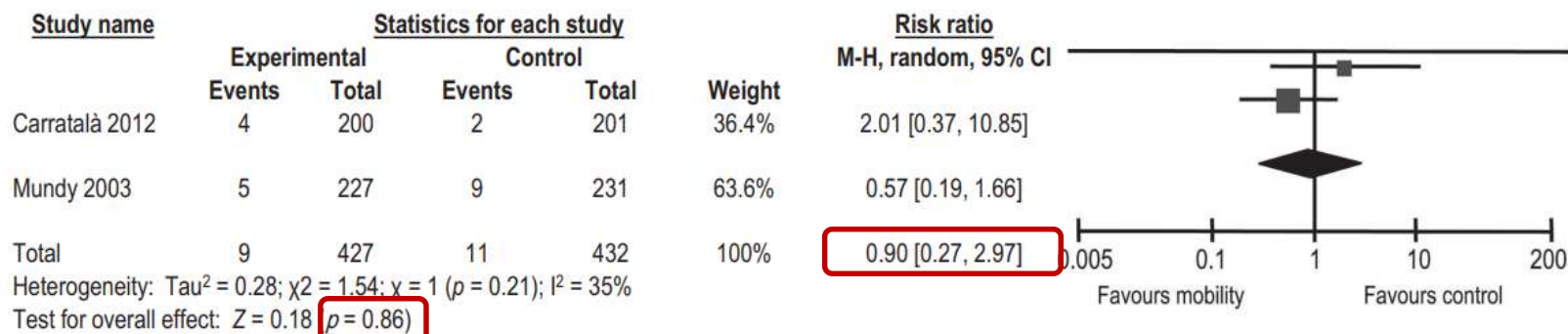
# FAITH評讀

是否以表格和圖表總結(Total up)試驗結果？

## RESULT



**Figure 2** Mean difference (95% CI) of the effect of early mobility versus usual care on hospital length of stay (in days) by pooling data from two studies ( $n = 507$ ).



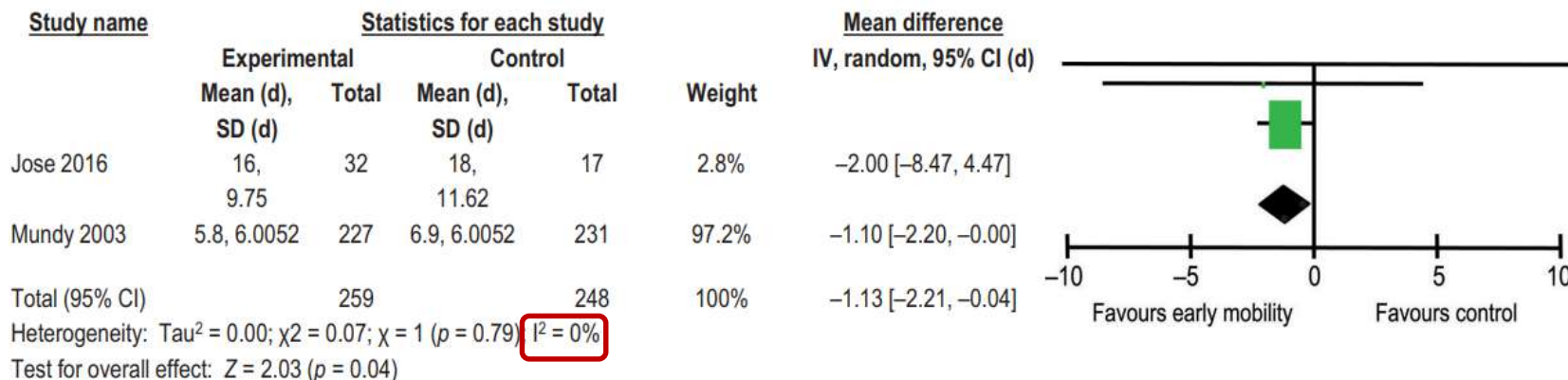
**Figure 3** Risk ratio (95% CI) of the impact of early mobility versus usual care on mortality by pooling data from two studies ( $n = 859$ ).



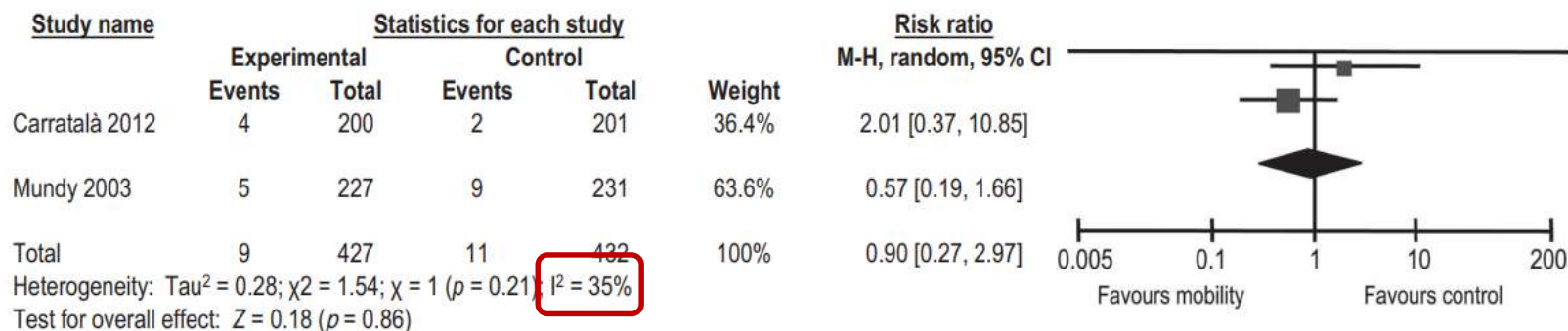


試驗的結果是否相近-異質性(Heterogeneity) ?

## RESULT



**Figure 2** Mean difference (95% CI) of the effect of early mobility versus usual care on hospital length of stay (in days) by pooling data from two studies ( $n = 507$ ).

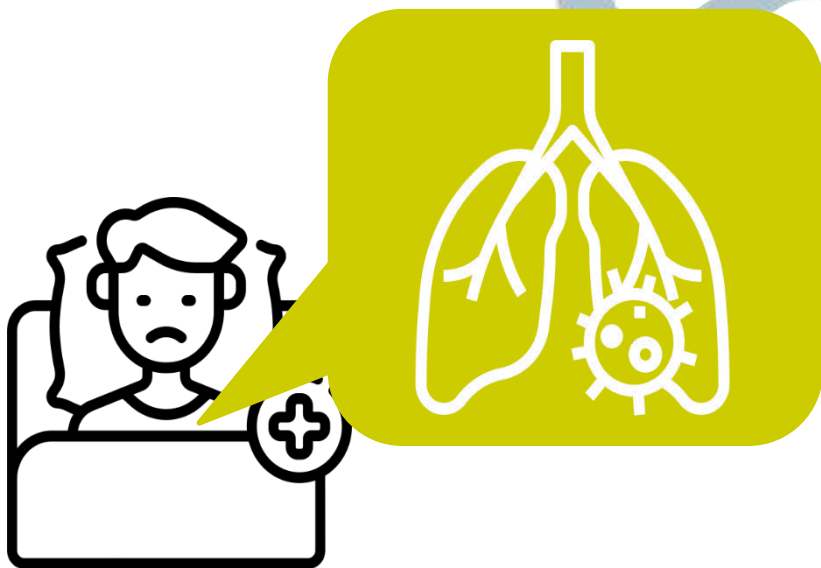


**Figure 3** Risk ratio (95% CI) of the impact of early mobility versus usual care on mortality by pooling data from two studies ( $n = 631$ ).

評讀結果：●是 ○否 ○不清楚

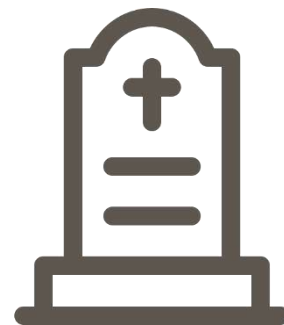
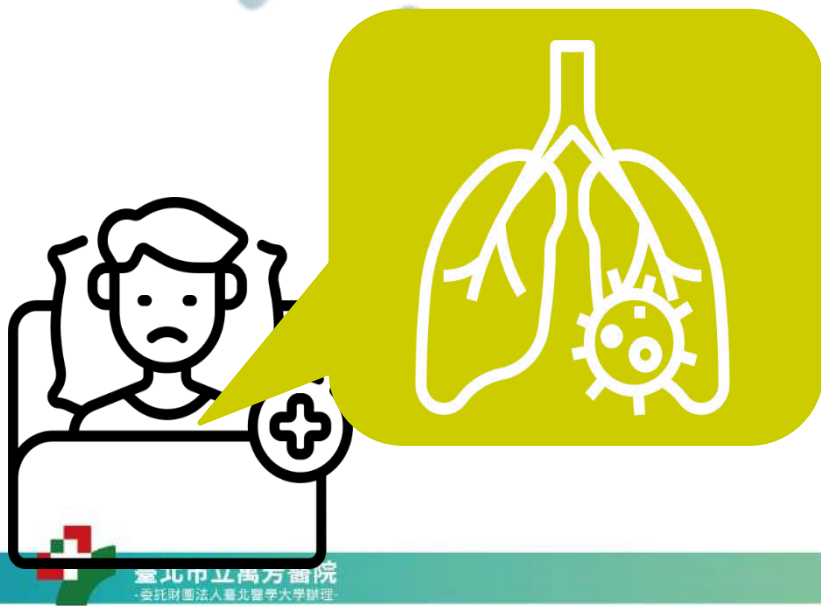
# 研究結果

入院後早期下床活動與降低住院天數有關



# 研究結果

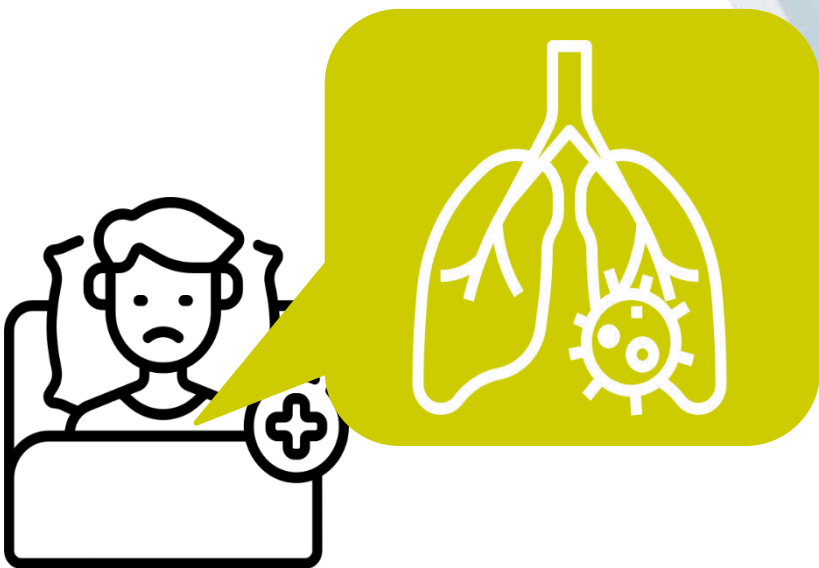
入院後早期下床活動與  
死亡率、再入院率或急診科就診率沒有差異



# 研究結果

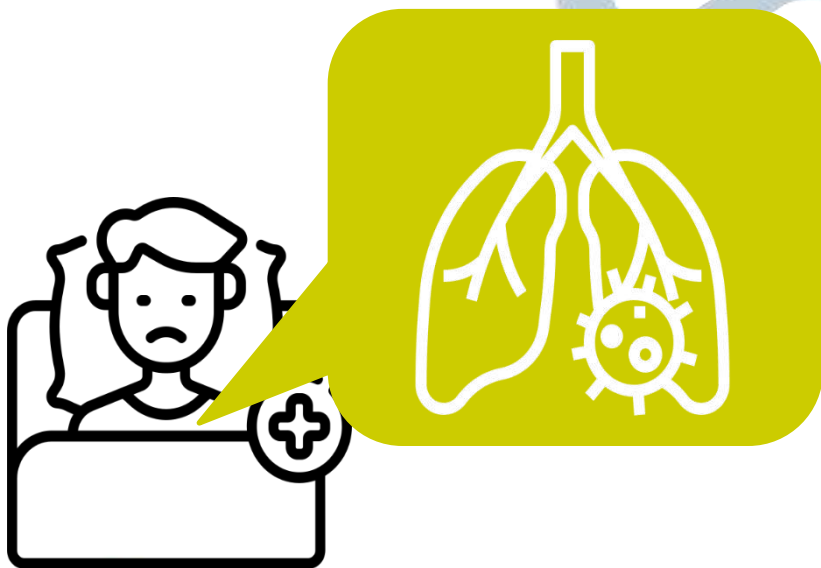
入院後早期下床活動與

改善體力、減輕呼吸困難嚴重程度和改善生活質量的證據有限



# 研究結果

入院後早期下床活動可視為肺炎的輔助治療





# 研究限制

- 每項研究應用不同運動處方和治療頻率
- 在不同的國家進行，常規護理不同、定義不明確
- 排除非英文發表的研究

## 肺炎ERP限制與改善



# Let's Vote!

## 是否贊成將 早期活動 納入本院肺炎病人照護常規？

- 同意：22
- 待評估：0
- 不同意：0



劉秋芬洗腎中心 下午12:54  
綠色

6A公務 下午12:55  
綠色

詹啟玉8A病房 下午12:55  
綠

陳盈仔 下午12:55  
綠





# 感謝聆聽

