鼻胃管灌食病人反抽胃殘留量一定要打回胃內嗎?

2022/03/29 (W2) 12:00~13:00

引言人：林惠庭
指導者：許怡苹 護理長、湯梅芬 督導長
陳可欣 副主任

背景資料 *Background Knowledge*

- 根據2021衛生福利部中央健康保險署統計2020年放置鼻胃管佔住院人數比率為10.05%。
- 鼻胃管是提供吞嚥障礙病人暫時或長期進食，及預防吸入性肺炎的一種處理方式(吳，2021)。
- 臨床常用灌食方式(葉、林，2021)。

灌食方式	方法
連續式灌食法 continuous	是將每天所需的灌食量，藉由灌食袋與灌食幫浦 (feeding pump)以恆定的速率持續性的灌食進入病人體內。
間歇式灌食法 intermittent	可以使用或不使用灌食幫浦 (feeding pump)，並將每日灌食量平均分配為4至6次，每次灌食時間超過20至60分鐘，每次灌食量約240至720毫升。
批式灌食法 bolus feeding	又稱為空針灌食法，每次灌食量約200至300毫升，將灌食配方以5至10分鐘的時間經由地心引力流入鼻胃管內。

背景資料 *Background Knowledge*

- 丟棄胃殘留液可能會導致胃液流失，使電解質不平衡，造成血鉀較低 (Ahmad et al., 2012)。
- 丟棄胃殘留液可以避免管路污染、感染風險、在檢查殘留量時造成管路阻塞，防止胃排空延遲引起的容量滯留 (Booker et al., 2000)。
- 目前院內ISO內容：應將反抽物以重力引流方式灌回胃內，若有未消化之食物，則應1-2小時後再反抽看看，若反抽物仍大於灌食量的一半時應暫緩灌食，且反抽物仍需灌回胃內。

臨床問題

前景問題 *Foreground Question*

問題類型：○ 治療型　○ 預後型　○ 診斷型　○傷害型　● 預防型

P

研究族群/問題 ***(Patient / Population / Problem)***

- 鼻胃管灌食病人且有未消化殘留液

I

介入措施 ***(Intervention)***

- 將殘留物丟棄

C

比較措施 ***(Comparison)***

- 將殘留物灌回胃內

O

結果 ***(Outcome)***

- 吸入性肺炎、噁心、嘔吐、腹瀉

預防型：SR > Prospective、RCT > Cohort> Case control > Case series

關鍵字 *Keywords*

	中文	英文	同義字	Mesh
P	鼻胃管	Nasogastric tube	gastric tube Stomach tube Enteral Nutrition	"Enteral Nutrition"[Mesh]
	胃殘留液 胃殘留量 胃殘留抽取	gastric residual	gastric residual volume gastric residual aspirate	Nil
I	丟棄	discard	Nil	Nil
C	打回胃內	return	Nil	Nil
O	併發症、副作用、吸入性肺炎、噁心、嘔吐、腹瀉	Complication、Aspiration pneumonia、nausea、Vomiting、Diarrhea	adverse effects Respiratory Aspiration	"Respiratory Aspiration"[Mesh] "Nausea"[Mesh] "Vomiting"[Mesh] "Diarrhea"[Mesh]

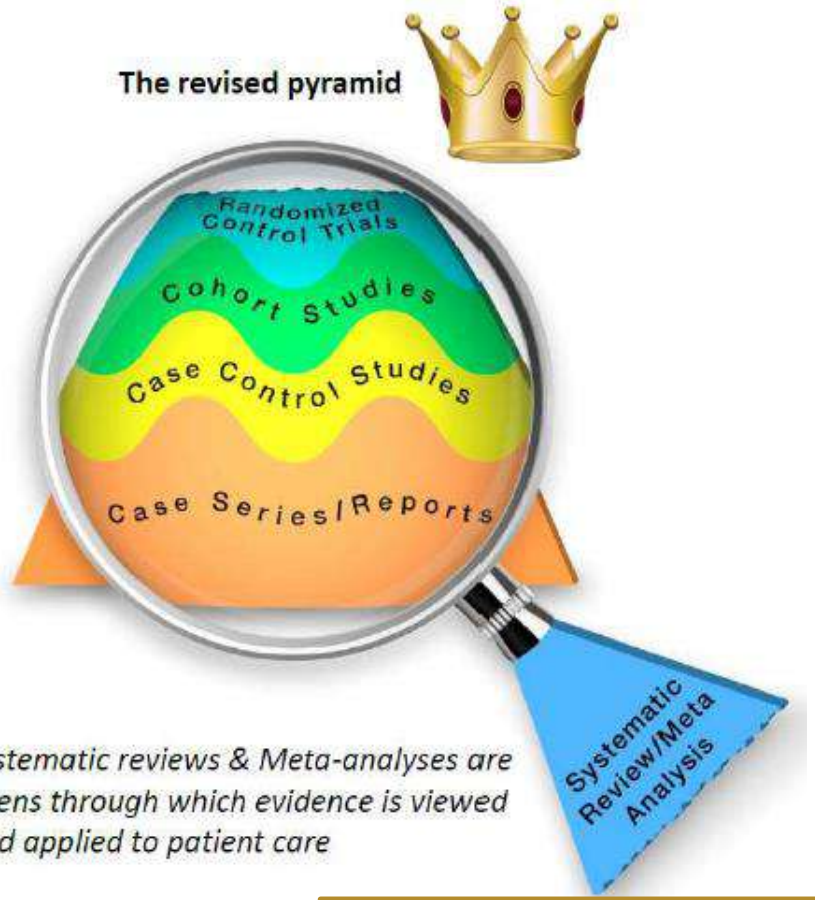
搜尋工具 *Search Tool*

Cochrane Library

PubMed

Embase®

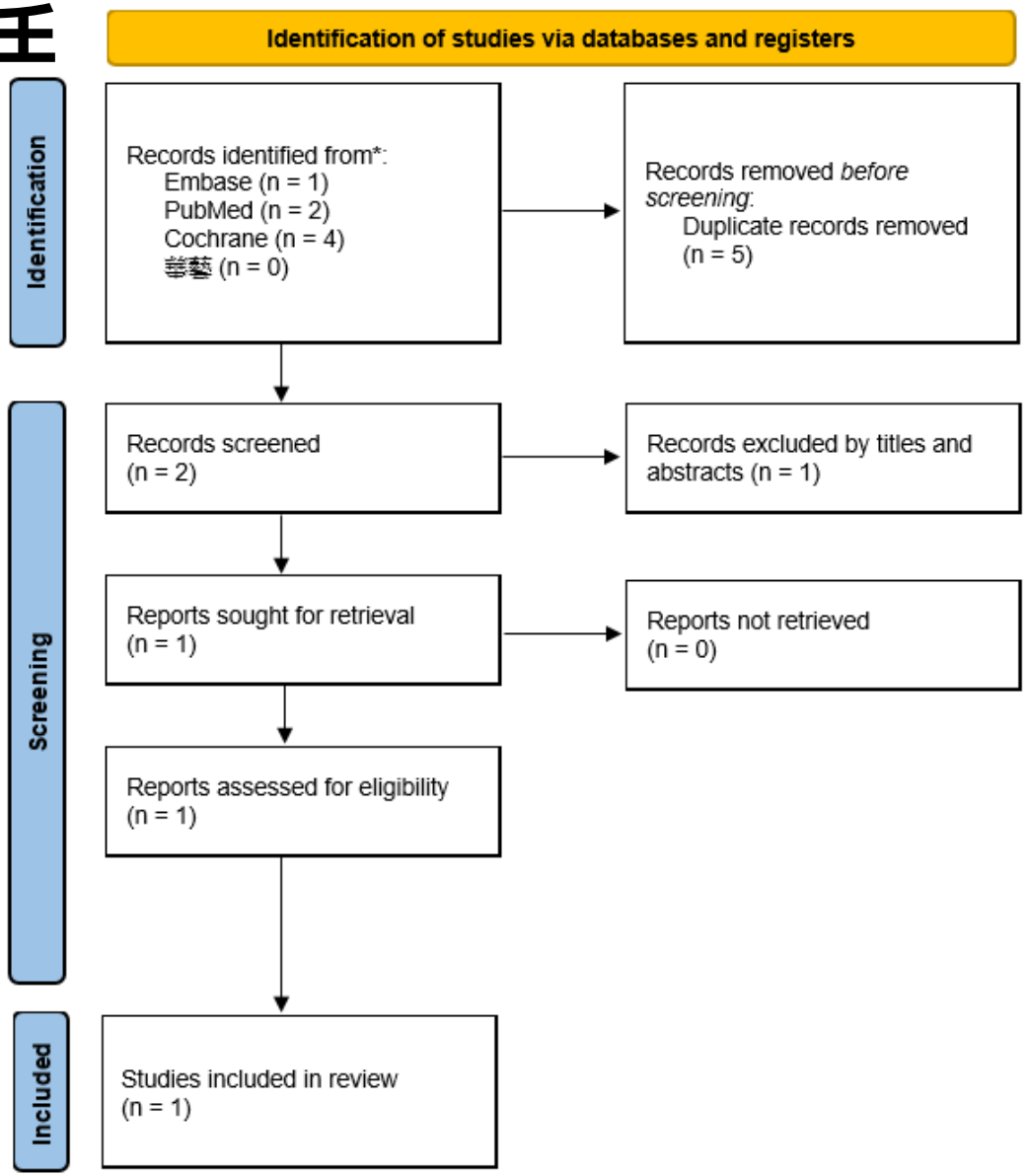
airiti Library
華藝線上圖書館



Systematic reviews & Meta-analyses are a lens through which evidence is viewed and applied to patient care

沒有限制年限

搜尋歷程


Identification of studies via databases and registers
Identification
Records identified from*:
Embase (n = 1)
PubMed (n = 2)
Cochrane (n = 4)
[illegible] (n = 0)
Records removed *before screening*:
Duplicate records removed (n = 5)
Screening
Records screened (n = 2)
Records excluded by titles and abstracts (n = 1)
Reports sought for retrieval (n = 1)
Reports not retrieved (n = 0)
Reports assessed for eligibility (n = 1)
Included
Studies included in review (n = 1)

選用文獻

★ 符合PICO
★ 證據等級最高
★ 年代最新

Wen *et al. BMC Gastroenterology* (2019) 19:113
https://doi.org/10.1186/s12876-019-1028-7

BMC Gastroenterology

RESEARCH ARTICLE Open Access

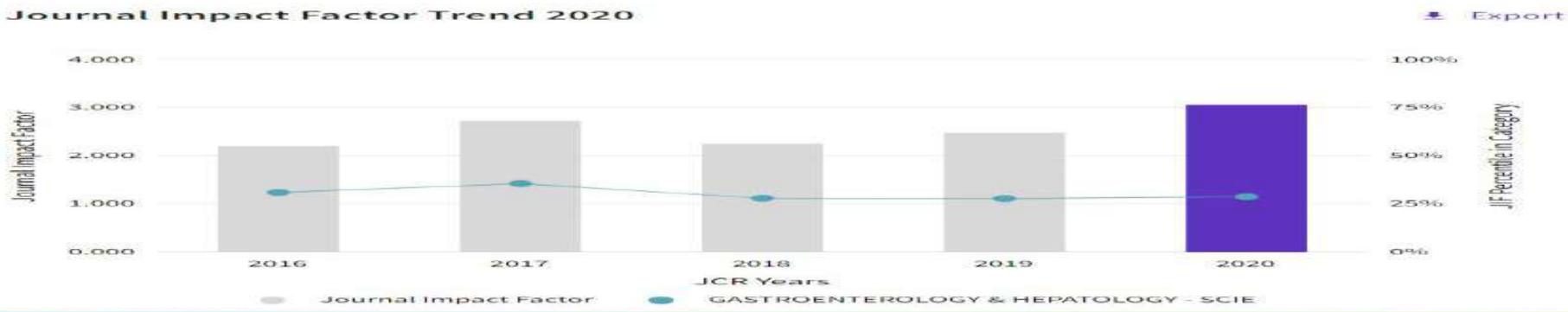
Is discard better than return gastric residual aspirates: a systematic review and meta-analysis

Zunjia Wen†, Ailing Xie†, Mingqi Peng†, Lanzheng Bian, Li Wei and Mei Li*

2020年影響係數IF

3.067
View calculation

JOURNAL IMPACT FACTOR WITHOUT SELF CITATIONS
3.010
View calculation



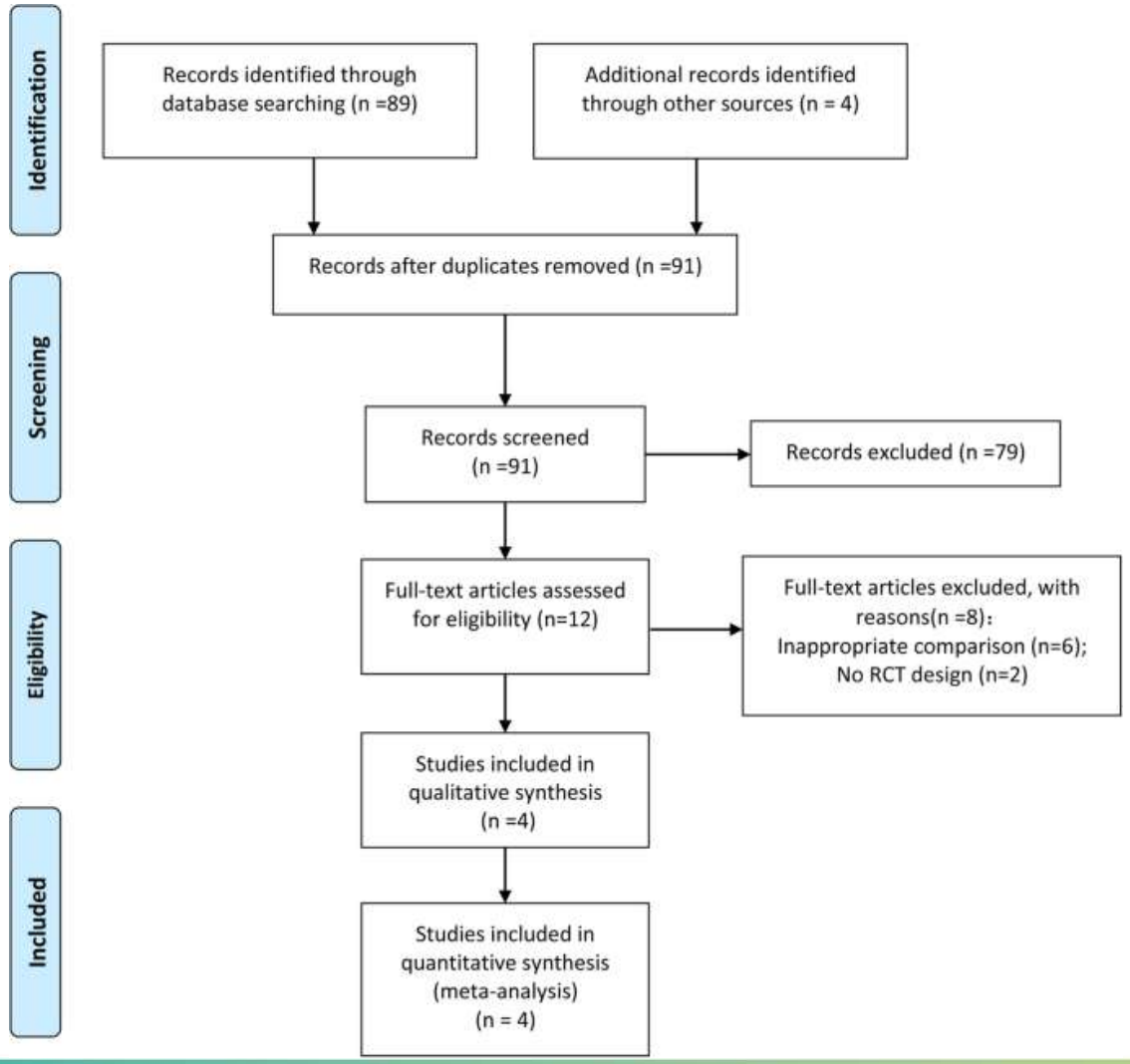
文獻內容簡介-背景

- Nutritional support is an essential part of patient management in intensive care unit (ICU).
- Critically ill ICU patients with feeding tube are at a high risk for many complications, such as gastric retention, pulmonary aspiration, and feeding intolerance, considering their impaired consciousness level, unstable physiological status, and intervene of mechanical ventilation.
- several studies have focused on management of gastric aspirates; their results on whether to return or discard gastric aspirates remain controversial.
- Despite a certain number of randomized controlled trials (RCTs) on management of gastric aspirates, the variability of intervention time, sample size, and outcomes remains large.
- This systematic review and meta-analysis aims to evaluate whether discarding or returning gastric aspirates can improve the outcomes of ICU patients with feeding tube.

文獻內容簡介-方法

- A comprehensive, systematic meta-analysis of randomized controlled trials (RCTs) on the efficacy and safety of discarding or returning gastric aspirates in critical ill patients was performed. Studies were identified by searching Pubmed and other databases (from inception to 31 Sept 2018).
- Summary odd ratios (ORs) or mean differences (MDs) with 95% confidence intervals were calculated using fixed- or random-effects model for outcome assessment.

文獻內容簡介- PRISMA



文獻內容簡介-結果 (Fig. 4 A,B)

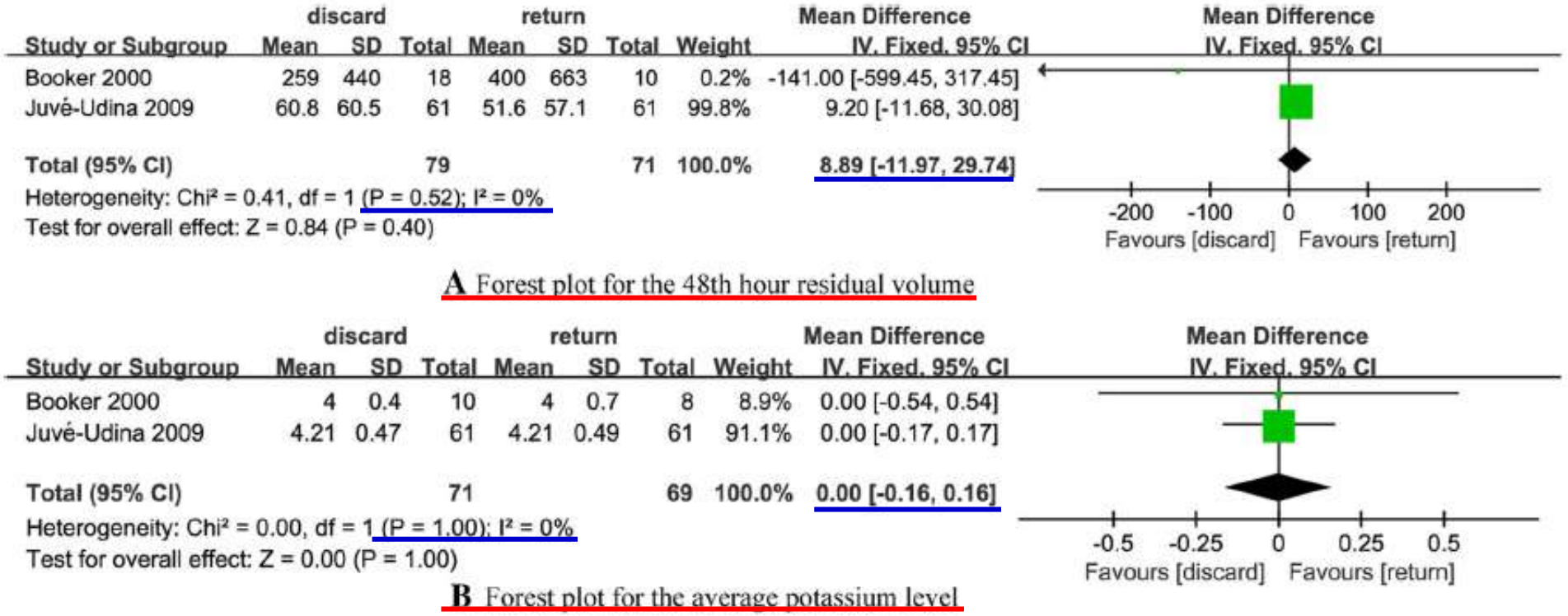


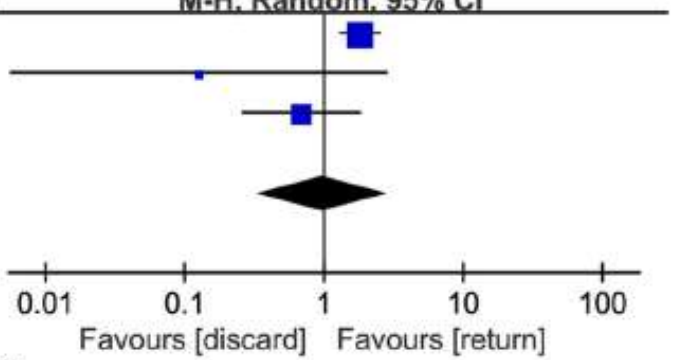
Fig. 4 Forest plot for different outcomes. **a** Forest plot for the 48th hour residual volume. **b** Forest plot for the average potassium level. **c** Forest plot for the episodes of gastric emptying delay

文獻內容簡介-結果(Fig. 4 C)

Study or Subgroup	discard Events	discard Total	return Events	return Total	Weight	Odds Ratio M-H, Random, 95% CI
Behairy 2014	104	2580	49	2170	53.1%	1.82 [1.29, 2.57]
Booker 2000	7	10	8	8	9.4%	0.13 [0.01, 2.86]
Juvé-Udina 2009	8	61	11	61	37.5%	0.69 [0.26, 1.85]
Total (95% CI)		**2651**		**2239**	**100.0%**	**0.98 [0.35, 2.80]**
Total events	119		68			

Heterogeneity: Tau² = 0.51; Chi² = 5.89, df = 2 (P = 0.05); I² = 66%

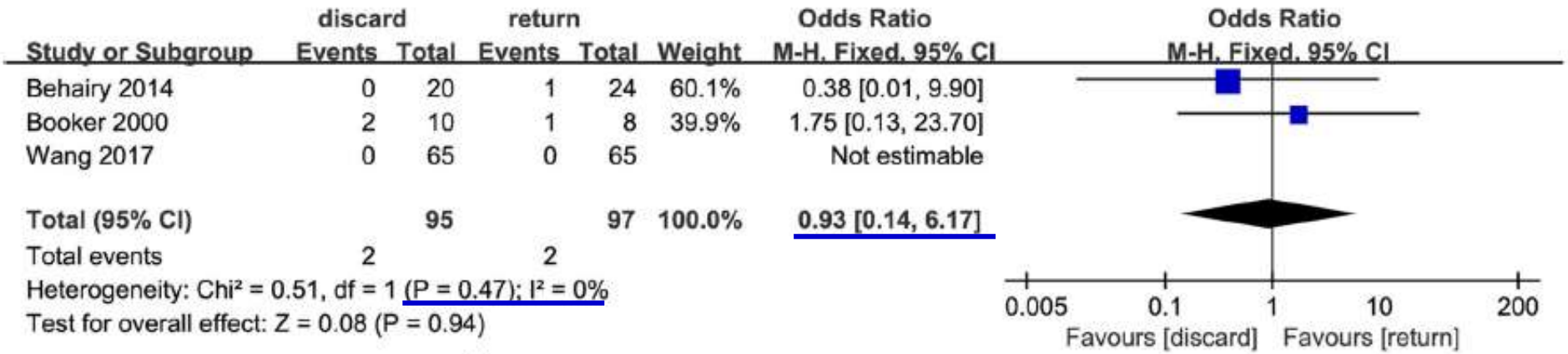
Test for overall effect: Z = 0.03 (P = 0.97)



C Forest plot for the episodes of gastric emptying delay

Fig. 4 Forest plot for different outcomes. **a** Forest plot for the 48th hour residual volume. **b** Forest plot for the average potassium level. **c** Forest plot for the episodes of gastric emptying delay

文獻內容簡介-結果(Fig. 5 A,B)



Study or Subgroup	discard Events	discard Total	return Events	return Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Behairy 2014	0	20	1	24	60.1%	0.38 [0.01, 9.90]
Booker 2000	2	10	1	8	39.9%	1.75 [0.13, 23.70]
Wang 2017	0	65	0	65		Not estimable
Total (95% CI)		**95**		**97**	**100.0%**	**0.93 [0.14, 6.17]**
Total events	2		2			

Heterogeneity: Chi² = 0.51, df = 1 (P = 0.47); I² = 0%
Test for overall effect: Z = 0.08 (P = 0.94)

A Forest plot for the incidence of aspiration pneumonia

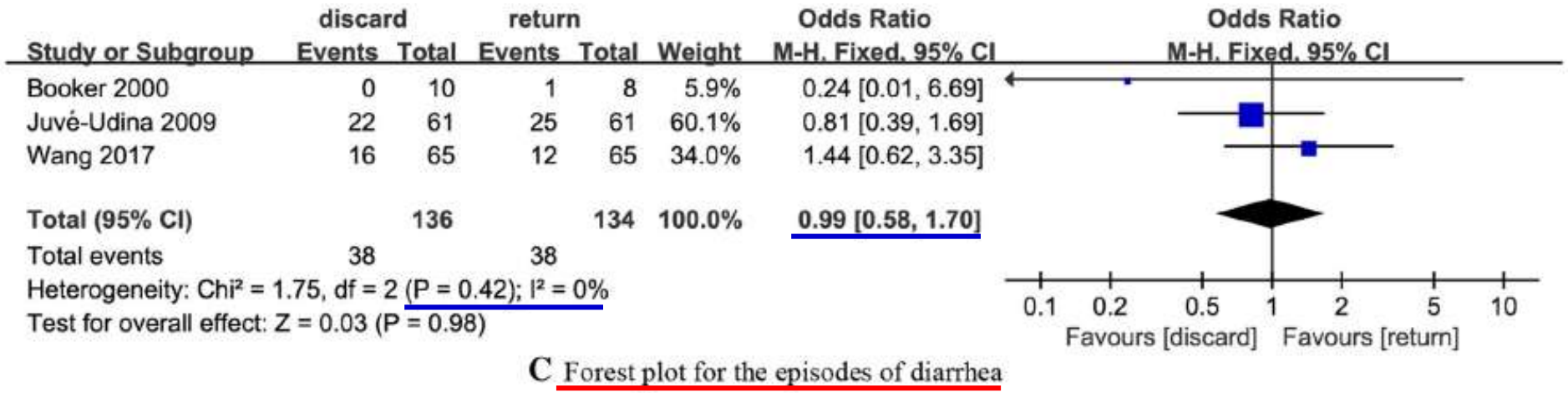
Study or Subgroup	discard Events	discard Total	return Events	return Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Booker 2000	0	10	1	8	61.6%	0.24 [0.01, 6.69]
Juvé-Udina 2009	1	61	1	61	38.4%	1.00 [0.06, 16.36]
Total (95% CI)		**71**		**69**	**100.0%**	**0.53 [0.07, 4.13]**
Total events	1		2			

Heterogeneity: Chi² = 0.42, df = 1 (P = 0.52); I² = 0%
Test for overall effect: Z = 0.60 (P = 0.55)

B Forest plot for the episodes of nausea or vomiting

Fig. 5 Forest plot for different outcomes. **a** Forest plot for the incidence of aspiration pneumonia. **b** Forest plot for the episodes of nausea or vomiting. **c** Forest plot for the episodes of diarrhea

文獻內容簡介-結果(Fig. 5 C)



C Forest plot for the episodes of diarrhea

Fig. 5 Forest plot for different outcomes. **a** Forest plot for the incidence of aspiration pneumonia. **b** Forest plot for the episodes of nausea or vomiting. **c** Forest plot for the episodes of diarrhea

文獻內容簡介-結論

- No evidence confirms that returning residual gastric aspirates provides more benefits than discarding them without increasing potential complications.
- Rigorously designed, multi-center, large-sample randomized controlled trials must be further conducted to validate the role of discarding or returning residual gastric aspirates.

評讀工具 *Search Tool*

- 使用CASP (**Systematic Review Checklist**)
  - Section A: 研究結果可信嗎?
  - Section B: 研究結果為何?
  - Section C: 研究結果對於當地病人有幫助嗎?

CASP
Critical Appraisal Skills Programme

CASP Checklist: 10 questions to help you make sense of a **Systematic Review**

How to use this appraisal tool: Three broad issues need to be considered when appraising a systematic review study:

(A) 研究結果可信嗎? 篩選問題

1. 此篇系統性文獻回顧是否問了一個清楚、明確的問題?

研究族群、給予的措施、考量的結果

Page: 2

This systematic review and meta-analysis aims to evaluate whether discarding or returning gastric aspirates can improve the outcomes of ICU patients with feeding tube.

P	鼻胃管灌食病人且有未消化殘留液
I	丟棄
C	打回胃內
O	使用管灌的結果

評讀結果：☑ 是　☐ 否　☐ 不明確

(A) 研究結果可信嗎? 篩選問題

2. 作者是否尋找適當研究型態的文獻?

以隨機對照試驗的研究文獻評值介入措施的成效 Page: 2

Studies were considered eligible if the following criteria were met: the study design was RCT;the study subjects included critical ill adult patients with feeding tube; the intervention was to return or discard gastric aspirates with orogastric tube; we made no restriction on the timing of starting and ending of the intervention;and related outcomes, such as GRV, gastric emptying delay, aspiration pneumonia, and feeding intolerance,were reported and data could be retrieved. Case reports,series, qualitative studies, and review articles were excluded.

評讀結果：☑ 是　☐ 否　☐ 不明確

本篇文獻是否值得繼續閱讀? 是

(A) 研究結果可信嗎? 詳細問題

3. 你認為所有重要且相關的研究都被納入? [1]

使用了那些資料庫

Related articles were identified and selected by searching in Pubmed, EMBASE, Web of Science, Science Direct, Cochrane Central Register of Controlled Trials, China National Knowledge Infrastructure, Wanfang Database, and the Chinese Biomedical Literature Database (from inception to 31 August 2018)

從參考資料清單中再進行搜尋

The reference lists of the retrieved studies and previous reviews and meta-analyses were manually search for potential RCTs.

與專家進行個別聯繫

We also attempted to contact authors to obtain original data or missing details.

(A) 研究結果可信嗎? 詳細問題

3. 你認為所有重要且相關的研究都被納入? 2

除了已發表的研究文獻，也搜尋未發表的研究文獻 Page: 2

本文未提及

搜尋非英文的研究文獻

No language limits were set for the identification of related publications.

使用關鍵字

following search terms: (nasogastric tube OR gastric tube OR gastric feeding OR enteral nutrition OR EN) AND (gastric residual volume OR GRV OR gastric residual aspirate OR aspirate) AND (discard OR return or management).

評讀結果：□ 是 □ 否 ☑ 不明確

(A) 研究結果可信嗎? 詳細問題

4. 系統性文獻回顧的作者是否評估所納入研究文獻的品質? [1]

如何進行評讀及使用的評讀工具

Page: 2

- Two reviewers independently used Cochrane Collaboration's risk of bias tool to evaluate the methodological quality and risk of bias of the included RCTs.
- This tool includes seven specific domains, Each domain is classified as low risk of bias, high risk of bias, or unclear risk of bias according to the judgment criteria.
- Furthermore, we assessed the quality of evidence using the GRADE criteria.
- Any disagreements in the quality assessment were resolved by discussion and consents.

(A) 研究結果可信嗎? 詳細問題

4. 系統性文獻回顧的作者是否評估所納入研究文獻的品質? 2

偏倚風險評估結果

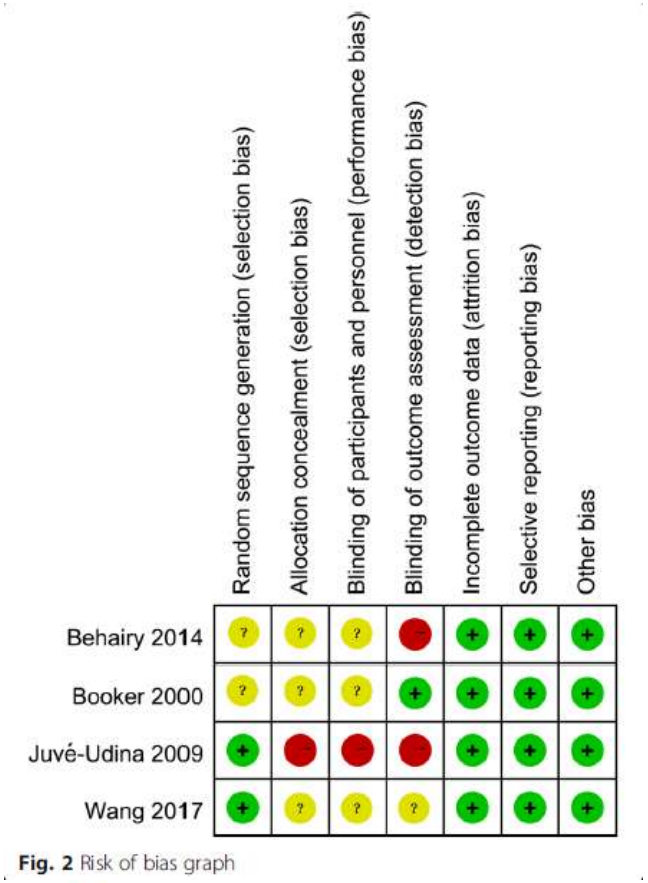


Fig. 2 Risk of bias graph

1. 共納入四篇RCT
2. Booker (2000), Behairy (2014)的隨機分派過程中產生是否有誤差不清楚，未提及分派是否隱匿性
3. Juve-Udina (2009)分配無盲化，另3篇分配盲化未清楚說明
4. 因研究介入措施的性質，參與者與研究者無法雙盲，僅有Booker 2000有提到研究者的盲化，故評估為低風險

此研究結果是否有盲化不影響研究結果

(A) 研究結果可信嗎? 詳細問題

4. 系統性文獻回顧的作者是否評估所納入研究文獻的品質? [3]

評估證據的質量結果

Page: 7

Table 2 The summary of synthesized findings

Outcomes	Number of included studies	Number of participants ontributing data to this outcome	Summary MD/OR	95% CI	Heterogeneity (I^2)	Quality of evidence (GRADE)
Forty-eight hour residual volume	2	150	8.89	−11.97 to 29.74	0%	⊕⊕⊕O Moderate
Average potassium level	2	140	0.00	−0.16 to 0.16	0%	⊕⊕⊕O Moderate
Episodes of gastric emptying delay	3	4890	0.98	0.35 to 2.80	66%	⊕⊕⊕O Moderate
Incidence of aspiration pneumonia	3	192	0.93	0.14 to 6.17	0%	⊕⊕⊕O Moderate
Episodes of nausea or vomiting	2	140	0.53	0.07 to 4.13	0%	⊕⊕OO Low
Episodes of diarrhea	3	170	0.99	0.58 to 1.70	0%	⊕⊕⊕O Moderate

評讀結果： □ 是 □ 否 ☑ 不明確

(A) 研究結果可信嗎? 詳細問題

5. 如果作者將研究結果進行合併，這樣的合併是否合理? [1]

有無合併

Page: 4

Table 1 The characteristics of included studies

Study (author year)	Country	Sample (discard /return)	Population	Intervention		Outcomes	Conclusions
				Discard group	Return group		
Behairy 2014 [19]	Egypt	44 (20/ 24)	Adult patients connected with EN within first 24 h and for 7 consecutive days	Discarded all gastric aspirate before feeding,	Returned the gastric aspirate up to 250 ml	The GRV, gastric emptying delay, the aspiration pneumonia, feeding intolerance (vomiting & diarrhea), the electrolytes & glucose level, comfort outcomes (vital signs and oxygen saturation) on 1st and 7th day.	It is recommended to return gastric aspirate up to 250 ml to the patients.
Booker 2000 [18]	USA	18 (10/ 8)	Critically ill adult ICUs patients with expected EN > 48 h.	Discarded all the residual volumes before feeding	Had all the residuals returned through the feeding tube.	Weight changes; serum level of electrolytes; complications such as diarrhea, nausea, vomiting et al.	It's tempting to encourage nurses to discard the residual volumes.
Juvé-Udina 2009 [17]	Spain	122 (61/ 61)	Critically ill ICU adult patient with estimated length of stay > 48 h	Any aspirate was discarded.	Returned the gastric aspirate up to 250 ml	Nasal gastric tube obstructive complication episodes; pulmonary aspiration episodes; intolerance episodes (nausea, vomiting, diarrhoea and abdominal distension); enteral feeding delays; hyperkalaemia, hyperglycaemia episodes; discomfort episodes	Re-introduce gastric content aspirated to improve GRV management is favored
Wang 2017 [20]	China	130 (65/ 65)	Surgical ICU adult patients with total or part EN	All the aspirates were discarded.	Returned the gastric aspirate up to 150 ml	The incidence of gastric emptying delay; the serum level of blood sugar, potassium, blood sodium; related complications (the incidence of gastric retention, tube blockage, diarrhea and aspiration)	Re-transfusion of gastric retention fluid is recommened.

(A) 研究結果可信嗎? 詳細問題

5. 如果作者將研究結果進行合併，這樣的合併是否合理? 2

是否合理	Page: 2
A fixed-effect model was adopted in case of homogeneity (P-value of X^2 test > 0.10 and I^2 < 50%). A random-effect model was used in case of significant heterogeneity (P-value of X^2 test > 0.10 and $I^2 \geq 50\%$).	
由附件的森林圖看出大多數結果 屬於同質性 (X^2 test *p* value>0.1, I^2 < 50%) 但在胃排空延遲的結果 屬於顯著異質性 (X^2 test *p* value>0.1, $I^2 \geq 50\%$)	
結果有差異的原因有被討論	
結果皆無差異	

評讀結果：☑ 是　☐ 否　☐ 不明確

(B) 研究結果為何?

6. 這篇系統性文獻回顧的整體結果為何？[1]

你是否清楚文獻回顧最重要的結果

- 四十八小時餘量
- 平均血鉀
- 胃排空延遲
- 吸入性肺炎
- 噁心或嘔吐
- 腹瀉

(B) 研究結果為何?

6. 這篇系統性文獻回顧的整體結果為何？ 2

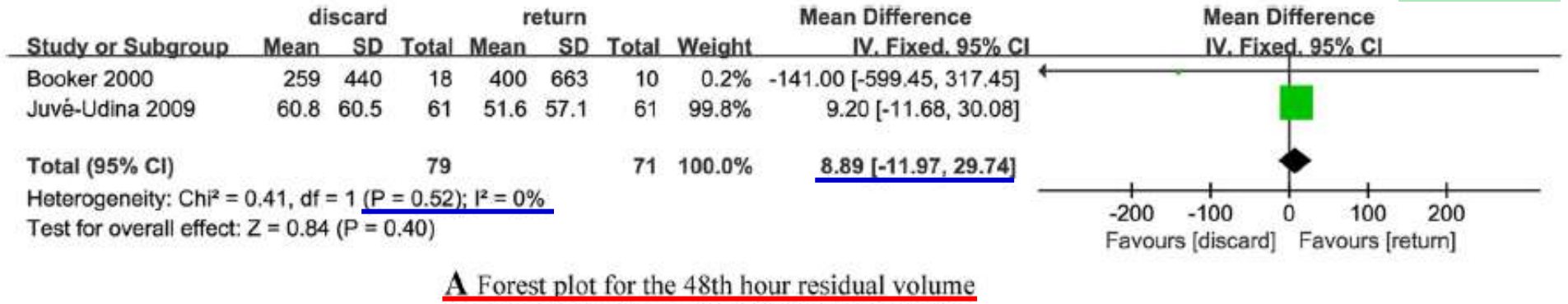


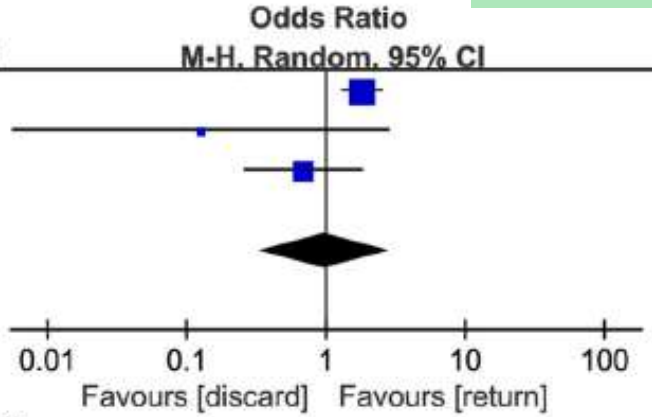
Fig. 4 Forest plot for different outcomes. **a** Forest plot for the 48th hour residual volume. **b** Forest plot for the average potassium level. **c** Forest plot for the episodes of gastric emptying delay

(B) 研究結果為何?

6. 這篇系統性文獻回顧的整體結果為何？ 3

Study or Subgroup	discard Events	discard Total	return Events	return Total	Weight	Odds Ratio M-H, Random, 95% CI
Behairy 2014	104	2580	49	2170	53.1%	1.82 [1.29, 2.57]
Booker 2000	7	10	8	8	9.4%	0.13 [0.01, 2.86]
Juvé-Udina 2009	8	61	11	61	37.5%	0.69 [0.26, 1.85]
Total (95% CI)		**2651**		**2239**	**100.0%**	**0.98 [0.35, 2.80]**
Total events	119		68			

Heterogeneity: Tau² = 0.51; Chi² = 5.89, df = 2 (P = 0.05); I² = 66%
Test for overall effect: Z = 0.03 (P = 0.97)



C Forest plot for the episodes of gastric emptying delay

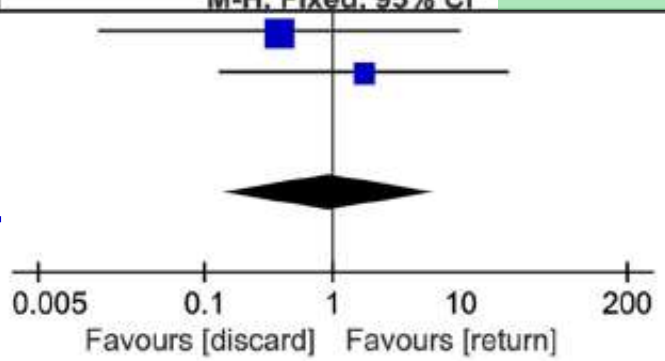
Fig. 4 Forest plot for different outcomes. **a** Forest plot for the 48th hour residual volume. **b** Forest plot for the average potassium level. **c** Forest plot for the episodes of gastric emptying delay

(B) 研究結果為何?

6. 這篇系統性文獻回顧的整體結果為何？ 4

Study or Subgroup	discard Events	discard Total	return Events	return Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Behairy 2014	0	20	1	24	60.1%	0.38 [0.01, 9.90]
Booker 2000	2	10	1	8	39.9%	1.75 [0.13, 23.70]
Wang 2017	0	65	0	65		Not estimable
Total (95% CI)		**95**		**97**	**100.0%**	**0.93 [0.14, 6.17]**
Total events	2		2			

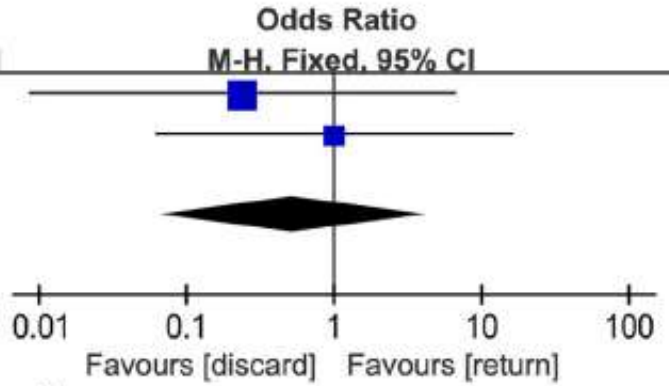
Heterogeneity: Chi² = 0.51, df = 1 (P = 0.47); I² = 0%
Test for overall effect: Z = 0.08 (P = 0.94)



A Forest plot for the incidence of aspiration pneumonia

Study or Subgroup	discard Events	discard Total	return Events	return Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Booker 2000	0	10	1	8	61.6%	0.24 [0.01, 6.69]
Juvé-Udina 2009	1	61	1	61	38.4%	1.00 [0.06, 16.36]
Total (95% CI)		**71**		**69**	**100.0%**	**0.53 [0.07, 4.13]**
Total events	1		2			

Heterogeneity: Chi² = 0.42, df = 1 (P = 0.52); I² = 0%
Test for overall effect: Z = 0.60 (P = 0.55)

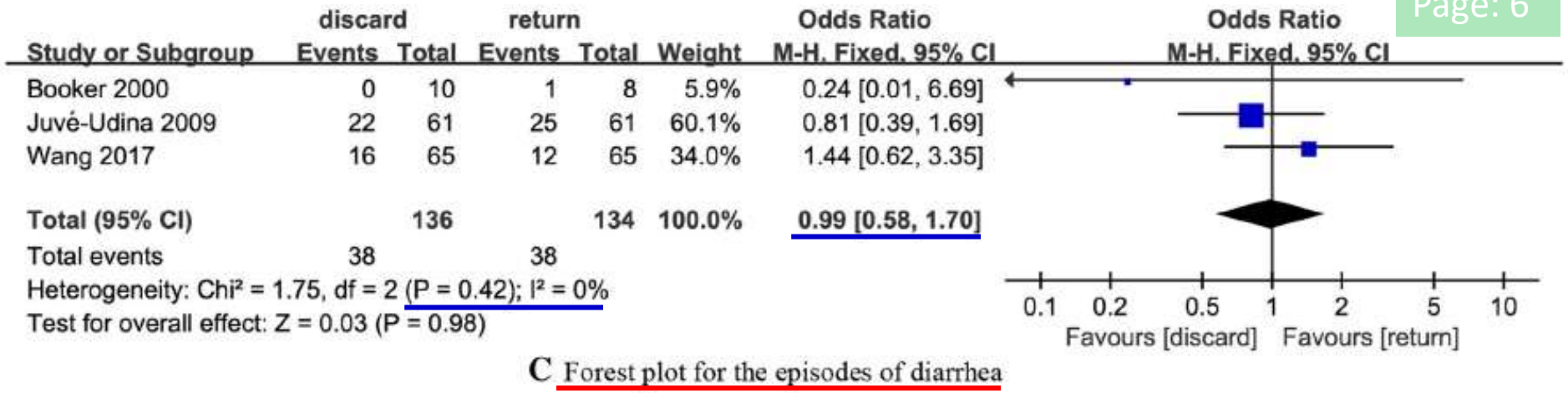


B Forest plot for the episodes of nausea or vomiting

Fig. 5 Forest plot for different outcomes. **a** Forest plot for the incidence of aspiration pneumonia. **b** Forest plot for the episodes of nausea or vomiting. **c** Forest plot for the episodes of diarrhea

(B) 研究結果為何?

6. 這篇系統性文獻回顧的整體結果為何？ 5



Study or Subgroup	discard Events	discard Total	return Events	return Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Booker 2000	0	10	1	8	5.9%	0.24 [0.01, 6.69]
Juvé-Udina 2009	22	61	25	61	60.1%	0.81 [0.39, 1.69]
Wang 2017	16	65	12	65	34.0%	1.44 [0.62, 3.35]
Total (95% CI)		**136**		**134**	**100.0%**	**0.99 [0.58, 1.70]**
Total events	38		38			

Heterogeneity: Chi² = 1.75, df = 2 (P = 0.42); I² = 0%
Test for overall effect: Z = 0.03 (P = 0.98)

C Forest plot for the episodes of diarrhea

Fig. 5 Forest plot for different outcomes. **a** Forest plot for the incidence of aspiration pneumonia. **b** Forest plot for the episodes of nausea or vomiting. **c** Forest plot for the episodes of diarrhea

評讀結果：☑ 是　☐ 否　☐ 不明確

(B) 研究結果為何?

7. 結果是否精準？

Table 2 The summary of synthesized findings

Outcomes	Number of included studies	Number of participants ontributing data to this outcome	Summary MD/OR	95% CI	Heterogeneity (I^2)	Quality of evidence (GRADE)
Forty-eight hour residual volume	2	150	8.89	−11.97 to 29.74	0%	⊕⊕⊕O Moderate
Average potassium level	2	140	0.00	−0.16 to 0.16	0%	⊕⊕⊕O Moderate
Episodes of gastric emptying delay	3	4890	0.98	0.35 to 2.80	66%	⊕⊕⊕O Moderate
Incidence of aspiration pneumonia	3	192	0.93	0.14 to 6.17	0%	⊕⊕⊕O Moderate
Episodes of nausea or vomiting	2	140	0.53	0.07 to 4.13	0%	⊕⊕OO Low
Episodes of diarrhea	3	170	0.99	0.58 to 1.70	0%	⊕⊕⊕O Moderate

評讀結果：☑ 是　☐ 否　☐ 不明確

(C) 研究結果對於當地病人有幫助嗎?

8. 此研究結果是否可應用到當地的族群？

Table 1 The characteristics of included studies

Page: 4

Study (author year)	Country	Sample (discard /return)	Population	Intervention		Outcomes	Conclusions
				Discard group	Return group		
Behairy 2014 [19]	Egypt	44 (20/24)	Adult patients connected with EN within first 24 h and for 7 consecutive days	Discarded all gastric aspirate before feeding,	Returned the gastric aspirate up to 250 ml	The GRV, gastric emptying delay, the aspiration pneumonia, feeding intolerance (vomiting & diarrhea), the electrolytes & glucose level, comfort outcomes (vital signs and oxygen saturation) on 1st and 7th day.	It is recommended to return gastric aspirate up to 250 ml to the patients.
Booker 2000 [18]	USA	18 (10/8)	Critically ill adult ICUs patients with expected EN > 48 h.	Discarded all the residual volumes before feeding	Had all the residuals returned through the feeding tube.	Weight changes; serum level of electrolytes; complications such as diarrhea, nausea, vomiting et al.	It's tempting to encourage nurses to discard the residual volumes.
Juvé-Udina 2009 [17]	Spain	122 (61/61)	Critically ill ICU adult patient with estimated length of stay > 48 h	Any aspirate was discarded.	Returned the gastric aspirate up to 250 ml	Nasal gastric tube obstructive complication episodes; pulmonary aspiration episodes; intolerance episodes (nausea, vomiting, diarrhoea and abdominal distension); enteral feeding delays; hyperkalaemia, hyperglycaemia episodes; discomfort episodes	Re-introduce gastric content aspirated to improve GRV management is favored
Wang 2017 [20]	China	130 (65/65)	Surgical ICU adult patients with total or part EN	All the aspirates were discarded.	Returned the gastric aspirate up to 150 ml	The incidence of gastric emptying delay; the serum level of blood sugar, potassium, blood sodium; related complications (the incidence of gastric	Re-transfusion of gastric retention fluid is recommened.

評讀結果：☑ 是　☐ 否　☐ 不明確

(C) 研究結果對於當地病人有幫助嗎?

9. 是否所有重要的臨床結果都有被考量到？

文獻中的結果

- 四十八小時餘量
- 平均血鉀
- 胃排空延遲
- 吸入性肺炎
- 噁心或嘔吐
- 腹瀉

未被考量到的結果

若丟棄胃殘留液需建議考量：

- 胃液保護維生素B12不被小腸內水解酶破壞，並促進他在迴腸的吸收 。
- 維生素B12吸收不良，造惡性貧血。
- 是否影響血糖變化

評讀結果：☐ 是　☐ 否　☑ 不明確

(C) 研究結果對於當地病人有幫助嗎?

10. 付出的傷害和花費換得介入措施所產生的益處是否值得？

傷害

- 經由文獻評讀結果，對於鼻胃管反抽之胃殘留液是否灌回胃內或丟棄的合併症之比較結果，包含四十八小時餘量、平均血鉀、胃排空延遲、吸入性肺炎、噁心、嘔吐及腹瀉之結果，皆無統計上之顯著差異，故無傷害。

成本費用

- 本文未特別提及
- 院內管灌配方餐費266元/日，每餐67元。

評讀結果：□ 是　□ 否　☑ 不明確

評讀總結

評讀結果：✔ 是　⚠ 不明確

CASP Appraisal Tool (Systematic Review)	Result
1. 此篇系統性文獻回顧是否問了一個清楚、明確的問題?	✔
2. 作者是否尋找適當研究型態的文獻?	✔
3. 你認為所有重要且相關的研究都被納入?	⚠
4. 系統性文獻回顧的作者是否評估所納入研究文獻的品質?	⚠
5. 如果作者將研究結果進行合併，這樣的合併是否合理?	✔
6. 這篇系統性文獻回顧的整體結果為何？	✔
7. 結果是否精準？	✔
8. 此研究結果是否可應用到當地的族群？	✔
9. 是否所有重要的臨床結果都有被考量到？	⚠
10. 付出的傷害和花費換得介入措施所產生的益處是否值得？	⚠

建議~~

- 將為胃殘留液丟棄，原因：
  - 反抽時偶會有病人痰液，以重力引流方式灌回胃內，會看到痰液漂浮在液面上。
  - 以重力引流方式灌回胃內，灌食人員會一直聞到酸味。
  - 人員感受度差。

其他文獻

- 急性病患往往有胃腸功能障礙，無法排空胃內容物。
- 過多的液體營養物質在胃中，會引起逆流或嘔吐，可能導致吸入性肺炎。
- 胃殘留量 (gastric residual volume, GRV)之監測，是否可以降低併發症? (Yasuda et al., 2021)

Monitoring of gastric residual volume during enteral nutrition (Review)

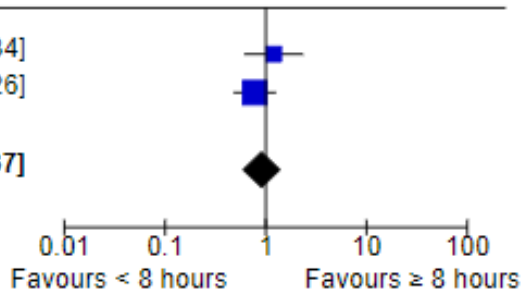
Yasuda H, Kondo N, Yamamoto R, Asami S, Abe T, Tsujimoto H, Tsujimoto Y, Kataoka Y

其他文獻

- 小於VS大於 8小時監測GRV
- 對於死亡的RR 0.91, 95% CI 0.60-1.37 , *p* value=0.64

Study or Subgroup	< 8 hours Events	Total	≥ 8 hours Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Büyükçoban 2016	12	30	10	30	35.3%	1.20 [0.61 , 2.34]
Williams 2014	25	179	32	178	64.7%	0.78 [0.48 , 1.26]
Total (95% CI)		**209**		**208**	**100.0%**	**0.91 [0.60 , 1.37]**
Total events:	37		42			

Heterogeneity: Tau² = 0.01; Chi² = 1.09, df = 1 (P = 0.30); I² = 8%
Test for overall effect: Z = 0.47 (P = 0.64)
Test for subgroup differences: Not applicable



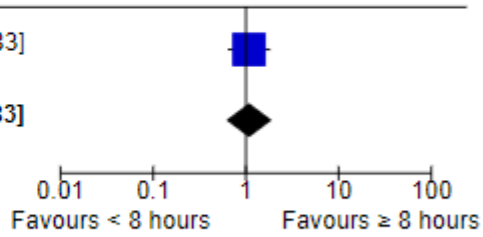
相對危險度（relative risk, RR）

其他文獻

- 小於VS大於 8小時監測GRV
- 對與肺炎的RR 1.08, 95% CI 0.64-1.83 , *p* value=0.77

Study or Subgroup	< 8 hours Events	Total	≥ 8 hours Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Williams 2014	25	179	23	178	100.0%	1.08 [0.64 , 1.83]
Total (95% CI)		**179**		**178**	**100.0%**	**1.08 [0.64 , 1.83]**
Total events:	25		23			

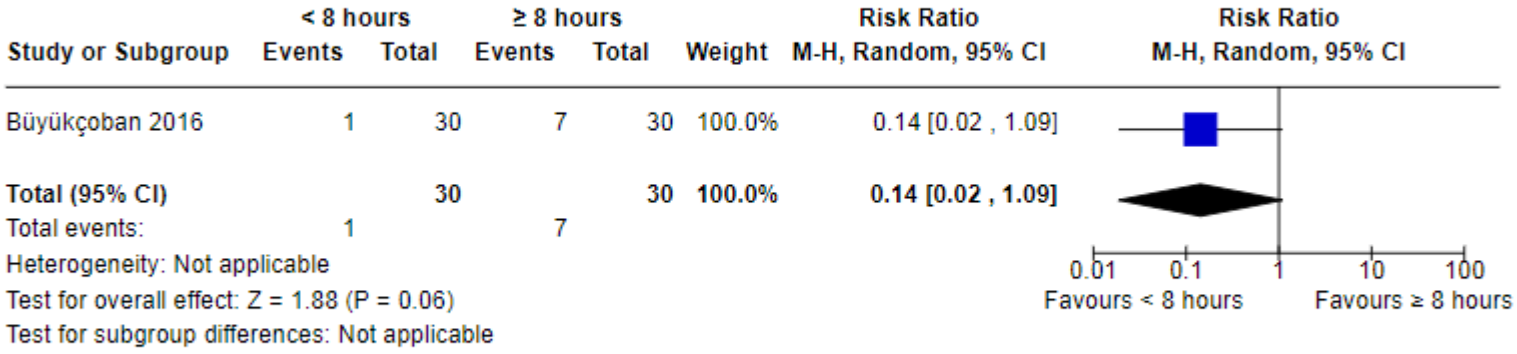
Heterogeneity: Not applicable
Test for overall effect: Z = 0.29 (P = 0.77)
Test for subgroup differences: Not applicable



相對危險度（relative risk, RR）

其他文獻

- 小於VS大於 8小時監測GRV
- 對於嘔吐的RR 0.41, 95% CI 0.02-1.09 , *p* value=0.06



相對危險度（relative risk, RR）

討論

- 是否贊成將鼻胃管灌食病人反抽之胃殘留液丟棄?

同意	需討論	不同意
1	32	8

參考資料

- 吳尚蓉 (2022)．鼻胃管留置病人吸入性肺炎的預防照護．*護理雜誌*， *69*(1)， 18-24。DOI：10.6224/JN.202202_69(1).04
- 葉子綺、林佑樺(2021)．重症病人的灌食與營養．*護理雜誌*，*68*(3)。DOI：10.6224/JN.202106_68(3).03
- 衛生福利部統計處（2021，9月22日）．鼻胃管插管率。https://dep.mohw.gov.tw/dos/cp-1720-7414-113.html[Department of Statistics, Ministry of Health and Welfare,Taiwan, ROC. (2021, September 22). The nasogastric tubefeeding rate in Taiwan. https://dep.mohw.gov.tw/dos/cp-1720-7414-113.html]
- Ahmad S, Le V, Kaitha S, Morton J, Ali T. Nasogastric tube feedings and gastric residual volume: a regional survey. *South Med J.* 2012;105(8):394–8.
- Booker, K. J., Niedringhaus, L., Eden, B., & Arnold, J. S. (2000). Comparison of 2 methods of managing gastric residual volumes from feeding tubes. *American Journal of Critical Care*, *9*(5), 318.
- Juvé-Udina, M. E., Valls-Miró, C., Carreño-Granero, A., Martinez-Estalella, G., Monterde-Prat, D., Domingo-Felici, C. M., ... & Asensio-Malo, G. (2009). To return or to discard? Randomised trial on gastric residual volume management. *Intensive and Critical Care Nursing*, *25*(5), 258-267.
- Yasuda, H., Kondo, N., Yamamoto, R., Asami, S., Abe, T., Tsujimoto, H., Tsujimoto, Y., & Kataoka, Y. (2021). Monitoring of gastric residual volume during enteral nutrition. *The Cochrane database of systematic reviews, 9*(9), CD013335. https://doi.org/10.1002/14651858.CD013335.pub2