

# 實證醫學---牙科應用 case conference

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# 個案病歷摘要



- 36歲來先生，來院主訴為全口牙齦於刷牙時容易流血
- 患者口腔有多量牙菌斑及牙結石沉積，牙齦呈現廣泛性明顯發炎狀態（紅腫及水腫）。

# 個案病歷摘要

## ■ Past medical history

- Denied any systemic disease
- Denied drug or food allergy

## ■ Past dental history

- Scaling

✓ Attitude to dental Tx. : cooperative

# Diagnosis

- **Plaque - induced generalized chronic periodontitis**
- (牙菌斑引起之廣泛性慢性牙周炎)

# 個案病歷摘要

- 告知患者需接受第一階段全口牙周病非手術性治療，以機械性方式施行全口牙根整平術及齒齦下刮除術，以徹底去除牙菌斑及牙結石，一般療程分四個象限逐次完成，每次間隔約一到兩週。
- 但患者表示，他平時都在台北工作，只有過年期間才有在高雄能接受治療，年後就要回台北，不確定下次何時會回來。
- 是否能在一次療程內完成第一階段之非手術性治療呢？

# Background information of periodontal treatment

- Chronic periodontitis is a chronic inflammatory disease of gingiva and periodontal tissues caused by dental plaque
- **Non-surgical periodontal treatment** is still the mainstay of any management plan for patients





# Background information of periodontal treatment

- *Successful periodontal Tx. is characterized by*
  - ***Reduction of probing pocket depth (PPD) / attachment level (PAL)***
  - *Control of inflammation*
    - *Redness*
    - *Swelling*
    - *Hot feeling*
    - *Pain*
    - ***Bleeding On Probing (BOP)***

**1. Asking an answerable question**

# Asking

- **Does non-surgical periodontal treatment can be finished in one visit ?**

# PICO

## ■ Patient

- Patient need to receive periodontal treatment, due to generalized periodontal tissue inflammation

## ■ Intervention

- Non-surgical periodontal treatment in one visit

## ■ Comparison

- Non-surgical periodontal treatment in multiple-visit

## ■ Outcomes

- **Reduction of probing depth (PPD) / attachment level (PAL)**
- *Control of inflammation*
  - **Bleeding On Probing (BOP)**

## 2. 尋找文獻證據

(Tracking down the best evidence)

# Tracking down the best evidence

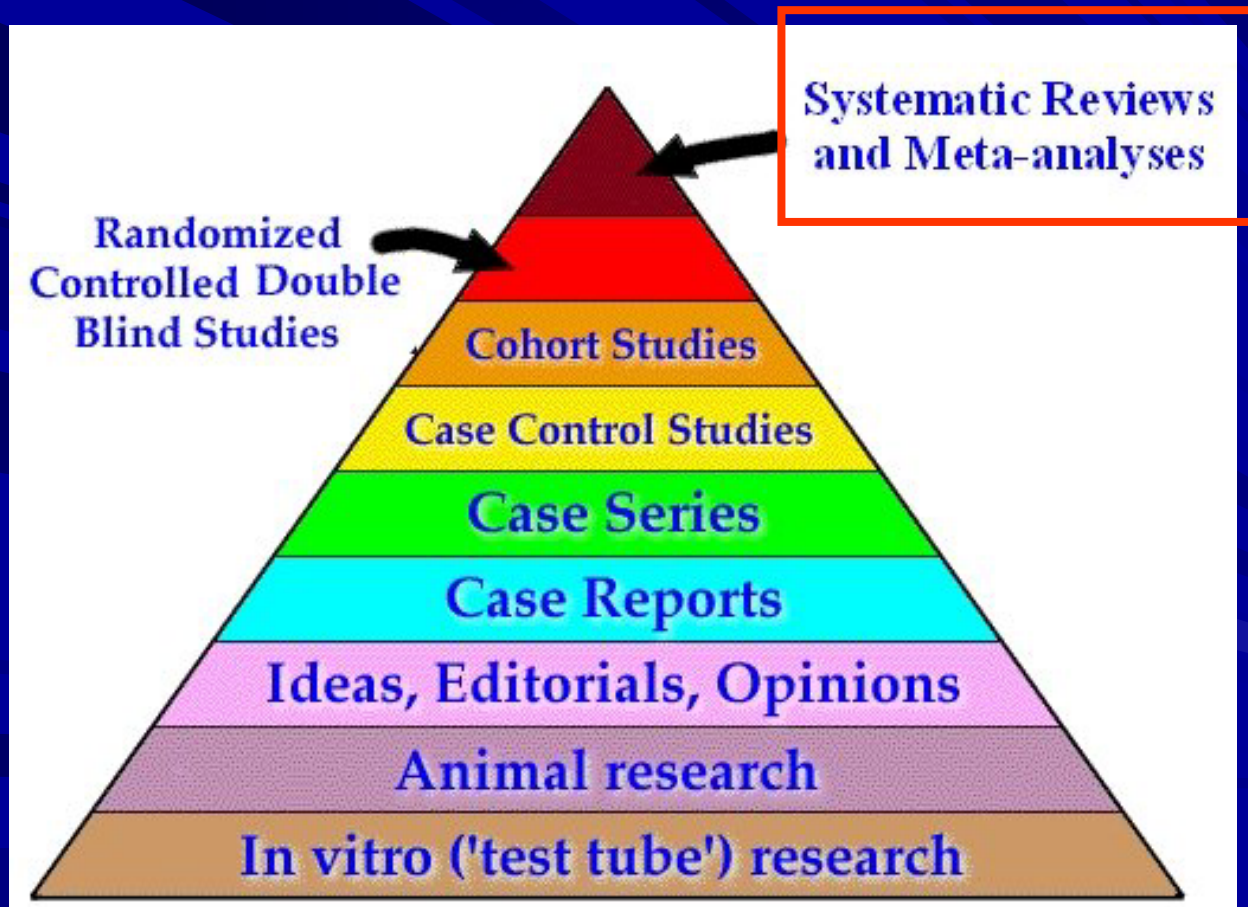
- **Key words** and search tactics:
  - (full mouth or quadrant) and (non-surgical periodontal treatment)
- **Database 的種類** :
  - Pubmed : 525 results
  - Pubmed central : 90 results

# Tracking down the best evidence

- Full-mouth treatment *versus* quadrant root surface debridement in the treatment of chronic periodontitis: a systematic review

*M. Farman and R. I. Joshi* Br Dent J. 2008 Nov 8;205(9)

# Evidence Pyramid (證據金字塔)



### 3. 嚴格評讀文獻

(Critical appraisal)

# Objectives

- The aim of this systematic review is to determine the effect of *full-mouth debridement* versus *quadrant-wise debridement*

# Search strategy

- **Searched the databases** for relevant trials:
  - Medline and PubMed
  - Cochrane Library
  - Medline via the Ovid and Embase databases
    - Date of last search was **end of 2007**
    - Language limitations ~ **English**
- **Hand searching** was performed for the major oral medicine journals
  - References of included studies and reviews were checked

# Selection criteria

- **Randomised controlled clinical trials**
- Surgical periodontal treatment was excluded

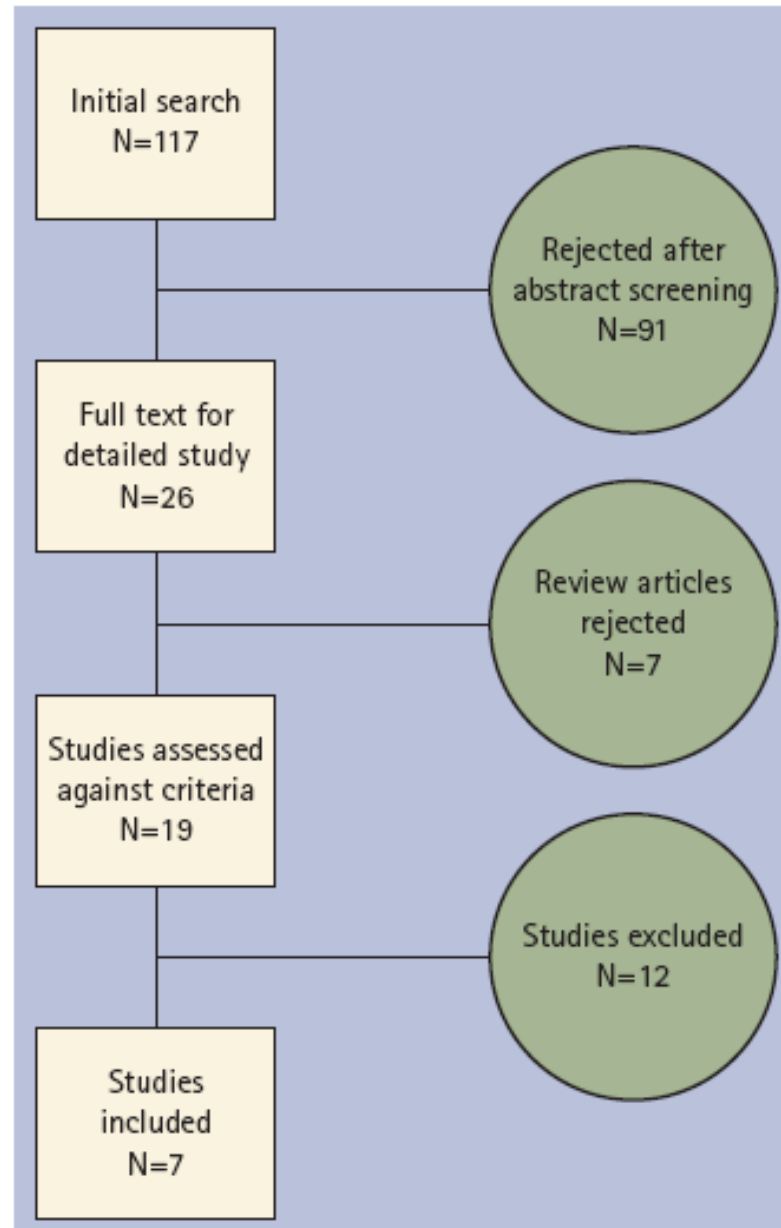


Fig. 1 Flow chart showing the outcome of literature search

# Types of studies

- **Randomised controlled clinical trials** of full-mouth nonsurgical periodontal therapy reporting clinical data with at least **six months follow up**

# Types of studies

## ■ Types of participants

- Patients with chronic periodontitis with history of no antibiotic usage for three months prior to the start of the study

## ■ Types of interventions

- Full-mouth debridement compared to conventional quadrant debridement

# Types of outcome measures

- The outcome measures for effectiveness were the following
  - ***reductions in probing pocket depths (PPD)***
  - ***reductions in probing attachment levels (PAL)***
  - ***bleeding on probing (BOP)***
  - *time spent on each treatment approach*
  - *reported patient complications*

# Data collection and analysis

- **Weighted mean differences (WMD)**
- **Meta-analysis performed for  $\Delta$ PPD and  $\Delta$ PAL in**
  - initially **moderate** pockets (5-7 mm)
  - initially **deep** pockets ( $\geq 7$  mm)
- **Assessment of the publication bias was not possible due to limited number of included studies**

# Main results~ **PPD change** (moderate)

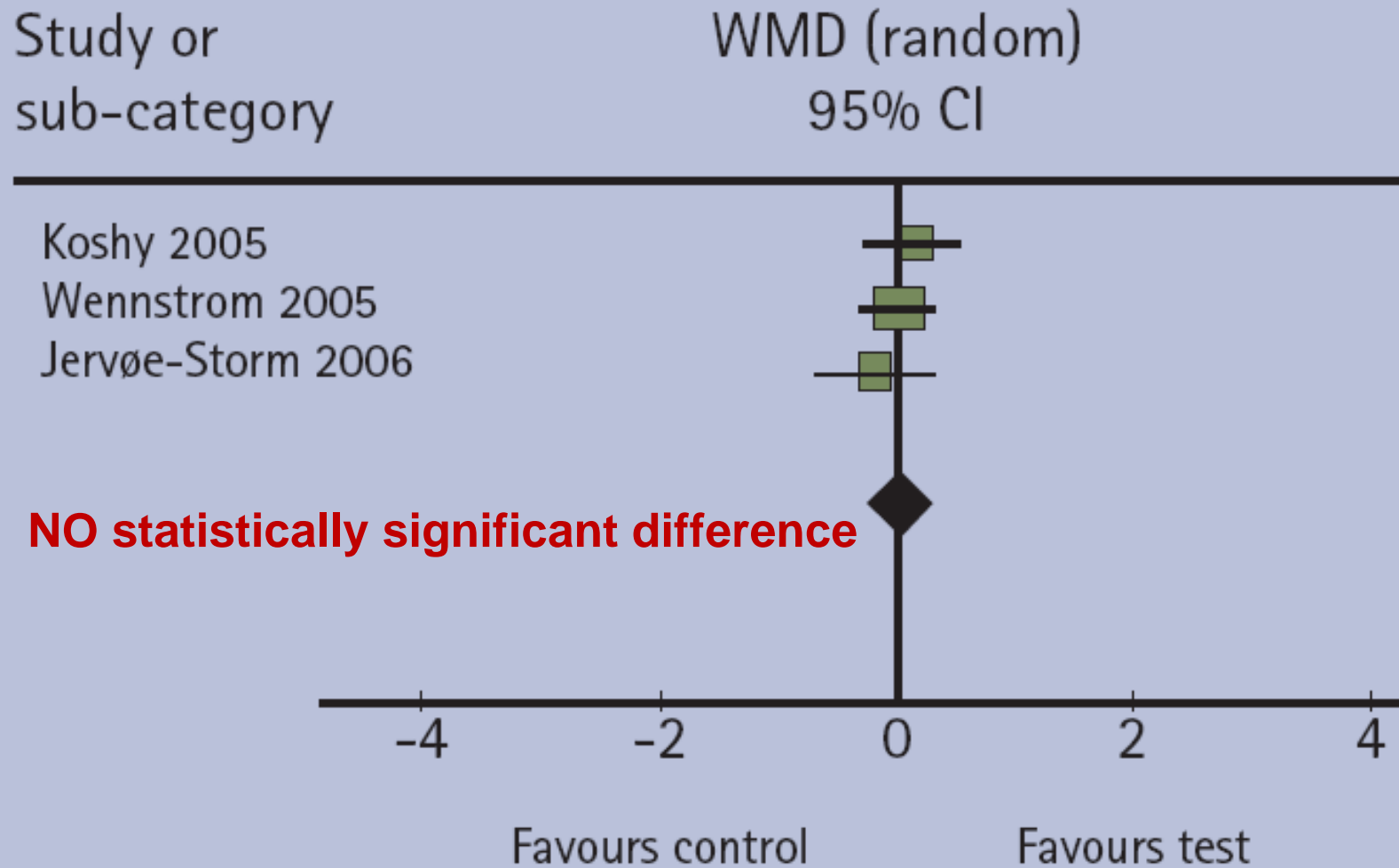


Fig. 3 Forest plot of PPD change in initially moderate pockets (5-7 mm) between FRp and Q

# Main results~ **PPD change** (deep)

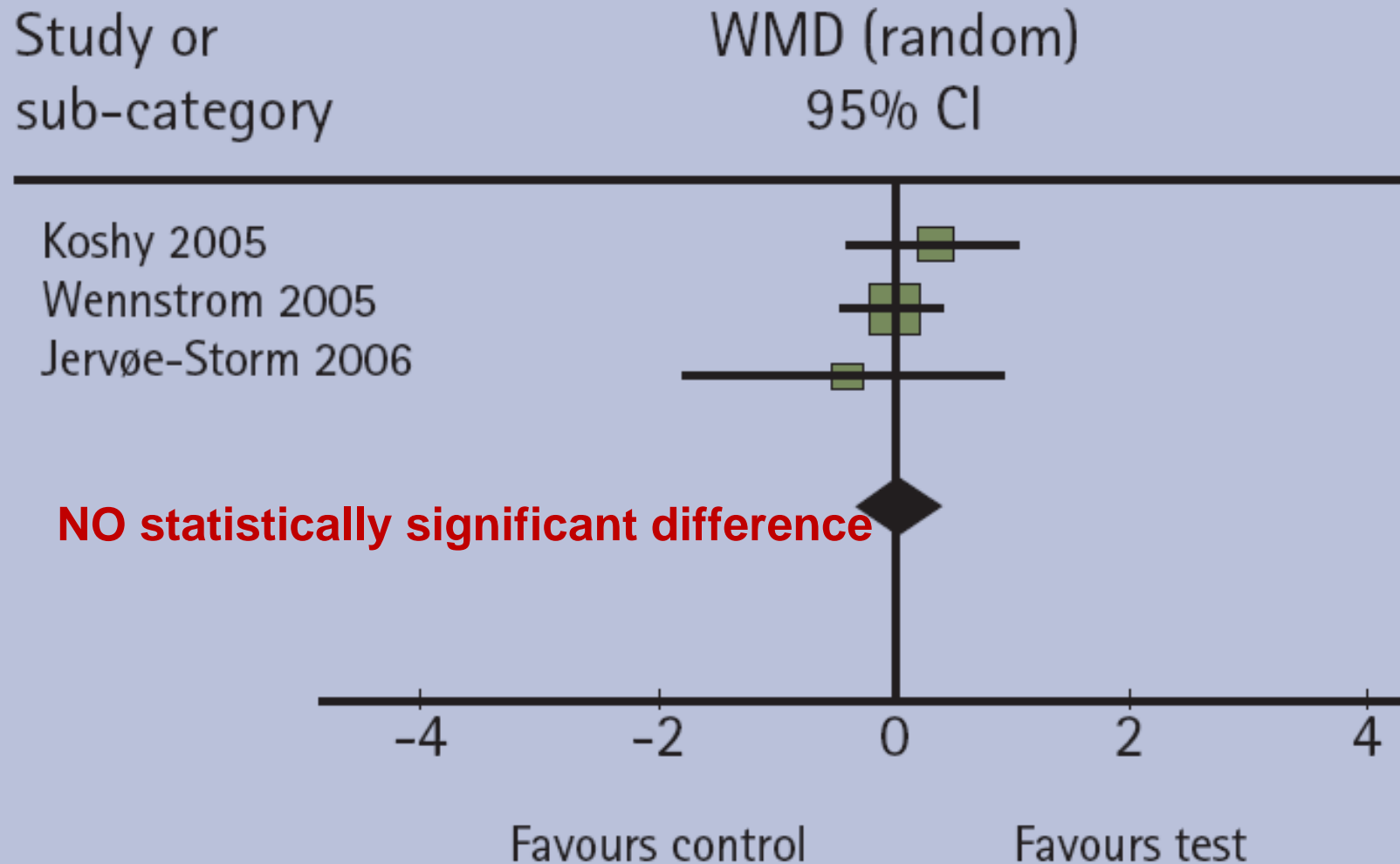


Fig. 2 Forest plot of PPD change in initially deep pockets ( $\geq 7$  mm) between FRp and Q

# Main results~ **PAL change** (moderate)

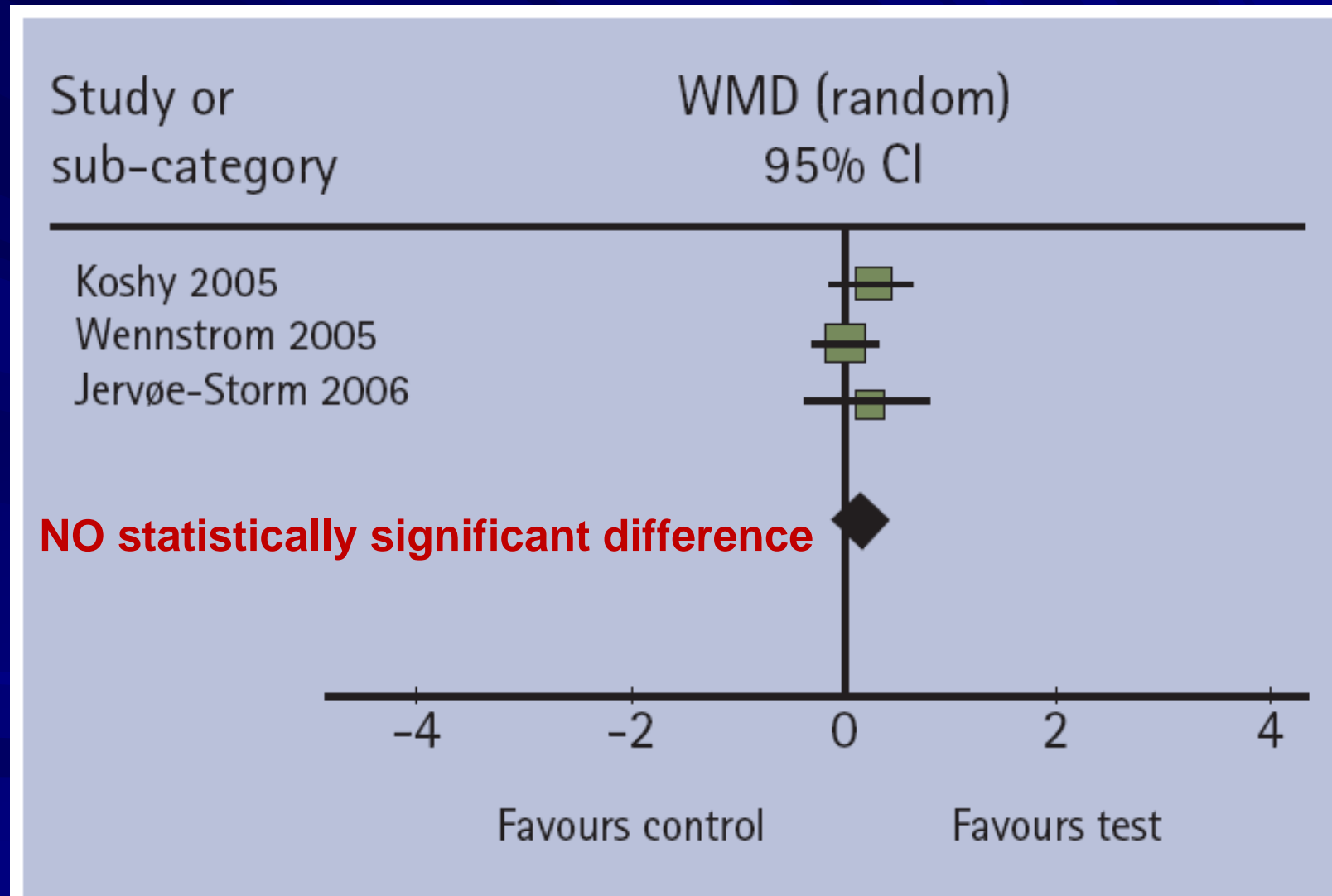


Fig. 5 Forest plot of PAL change in initially moderate pockets (5-7 mm) between FRp and Q

# Main results~ **PAL change** (deep)

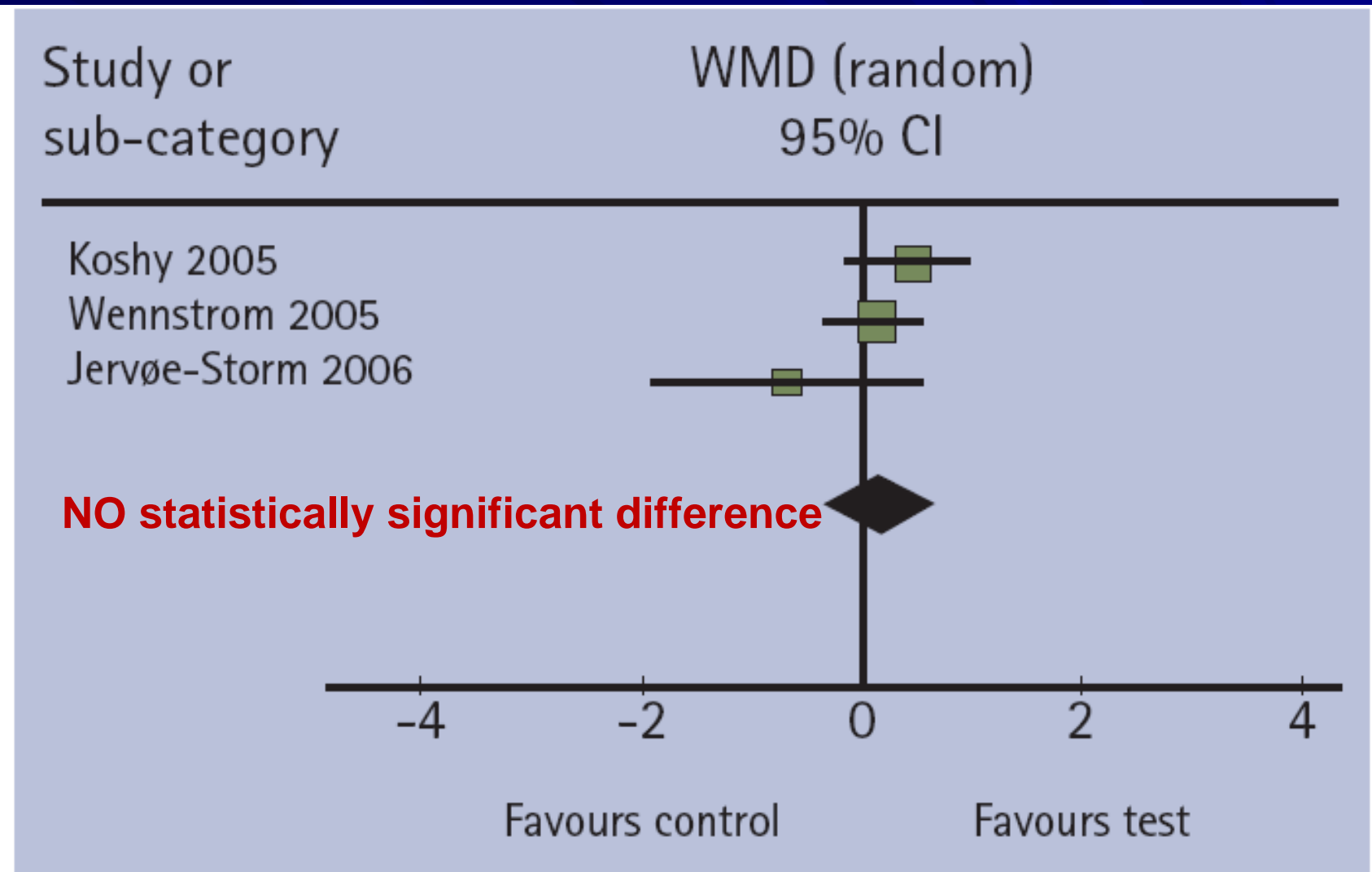


Fig. 4 Forest plot of PAL change in initially deep pockets ( $\geq 7\text{mm}$ ) between FRp and Q

# Main results~ **BOP**

- Bleeding on probing meta-analysis was **not possible** due to diversity of reported data
- **No significant difference** in reduction of BOP was reported between full-mouth and quadrant scaling / root planing

# Main results~ **complication**

- **Similar** levels of pain experience and analgesic consumption
  - Full-mouth approach may cause higher levels of **immediate complications** (e.g. higher BT) following the treatment compared to quadrant therapy
- Further specific studies for this outcome measure are required

# Main results~ **time spent**

- Only two studies reported the time spent on each type of treatment approach
  - Koshy *et al.* 2005~
    - *full-mouth approach required significantly less time to achieve similar results*
  - Wennström *et al.* 2005~
    - *significantly less for full-mouth therapy (treatment efficiency) but different instruments and methods are compared*
- **limited data** shows that the full-mouth approach can be associated with less treatment time

# Main results

- 3 randomised controlled trials were included in the review
- The PPD / PAL change were not significantly different between single- and multiple-visit non-surgical periodontal treatment

- The review is limited by the quality of the reported data.
  - None of the studies reported actual data accessible for easy transformation in the meta-analysis

# Author's conclusions

## ■ Implications for practice

- Non-surgical periodontal treatment is effective but showed **no difference in the periodontal clinical outcome** measures between full mouth and quadrant debridement
- **Less treatment time** may be needed for full-mouth debridement therapy compared to conventional quadrant scaling and root planing

# Author's conclusions

## ■ Implications for research

- Randomised controlled trials (RCTs) with longer duration seem necessary
- The researchers may find it useful to follow the Consolidated Standards of Reporting Trials (CONSORT) guidelines
- The data should be presented in standard statistical manner to allow easy transformation for future reviews

# Critical Appraisal of Systematic Review

## “系統性回顧”的評析

- **-Are the results of the review valid (效度如何)?**
- **– What question did the systematic review addressed (回答什麼問題)?**
- **– Is it unlikely that important, relevant studies were missed (沒有遺漏重要的文獻)?**
- **– Were the criteria used to select articles for inclusion appropriate (選擇文獻的準則適當)?**
- **– Were the included studies sufficiently valid for the type of question asked (選擇的文獻有效回答所問的問題)?**
- **– Were the results similar from study to study (各研究的結果相似)?**
- **• What were the results (結果為何)?**
- **– How are the results presented (結果如何呈現)?**

# Appraisal ~ Systematic Review

- What question (PICO) did the systematic review address? 想要回答什麼問題?

最理想狀況為何?	何處找到相關訊息?
應清楚闡明文章想要回答的問題，暴露因子(包括治療、檢驗等)與結果的因果關係簡單明瞭	題目、摘要或前言的末段應清楚描述所關心的問題。

This paper: Yes  No  Unclear

Comment:

# Appraisal ~ Systematic Review

- Is it unlikely that important, relevant studies were missed? 有沒有遺漏重要的文獻?

最理想狀況為何?	何處找到相關訊息?
資料搜尋是否完整，包含 <ul style="list-style-type: none"><li>-- 重要的資料庫如Medline, Cochrane, EMBASE等</li><li>-- 相關研究的參考文獻</li><li>-- 向專家請教，特別是尚未刊載的研究</li><li>-- 不只限於英文資料</li><li>-- 搜尋策略包括MESH term及text words</li></ul>	<p>“研究方法” 詳細描述搜尋字彙與策略</p> <p>“研究結果” 詳列回顧的題目、摘要、全文數目，排除的文章及排除理由，並以圖表或流程圖呈現</p>

This paper: Yes  No  Unclear

Comment:

# Appraisal ~ Systematic Review

- Were the criteria used to select articles for inclusion appropriate? 選擇文獻的準則適當?

最理想狀況為何?	何處找到相關訊息?
事先清楚界定“收入”及“排除”文章的準則準則的描述應包括病人群的特性、介入治療的方法或暴露因子、有興趣的研究結果研究的類型及研究設計	“研究方法”詳細描述“收入”及“排除”文章的準則，通常亦包含研究的類型

This paper: Yes  No  Unclear   
Comment:

# Appraisal ~ Systematic Review

- Were the included studies sufficiently valid for the type of question asked? 選擇的文獻有效回答所問的問題?

最理想狀況為何？	何處找到相關訊息？
應描述所回顧的每篇文章研究的品質研究品質的判定準則依不同臨床問題而事先擬定的，如隨機分配、雙盲、追蹤的完整度等	“研究方法”應描述品質的評估及所使用的準則“研究結果”應說明各研究的品質

This paper: Yes  No  Unclear   
Comment:

# Appraisal ~ Systematic Review

- Were the results similar from study to study 各研究的結果相似?

最理想狀況為何？	何處找到相關訊息？
<p>最理想的狀況是各研究的結論一致或差異不大</p> <p>如果各研究的結果有差異，作者以統計的方法檢驗是否達到有統計意義的差別</p> <p>探討各研究結論差異的原因</p>	<p>“研究結果”應說明各研究的結果是否有差異，並討論可能的原因</p> <p>“Forest plot”應顯示差異性的檢驗結果。</p>

This paper: Yes  No  Unclear   
Comment:

## 4. 應用於病人身上

**(Integrating the appraisal with clinical expertise & patients' preference)**

# Application

- 在研究上，我們運用EBM的模式去確定非手術性牙周治療在一次完成跟分次治療上在六個月追蹤後顯示成功率沒有顯著差異，在此次的治療中，可以一次完成非手術性牙周治療。這樣可以讓牙醫師與病人的治療模式上有更多選擇及方便性。

***Thanks for  
your attention!***