

**A randomized, controlled study on the effect
of counseling session provided by pharmacist
on MDI (metered-dose inhaler) technique
among patients in GOPC**

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15 May 2013*

Methodology

- **Prospective, randomized, controlled study**
 - Jun 2011 – Jan 2012
 - Ngau Tau Kok GOPC (KEC)
- **Patient recruitment**
 - Physicians' referral
 - Recruitment by pharmacist

Inclusion criteria:

Patients who

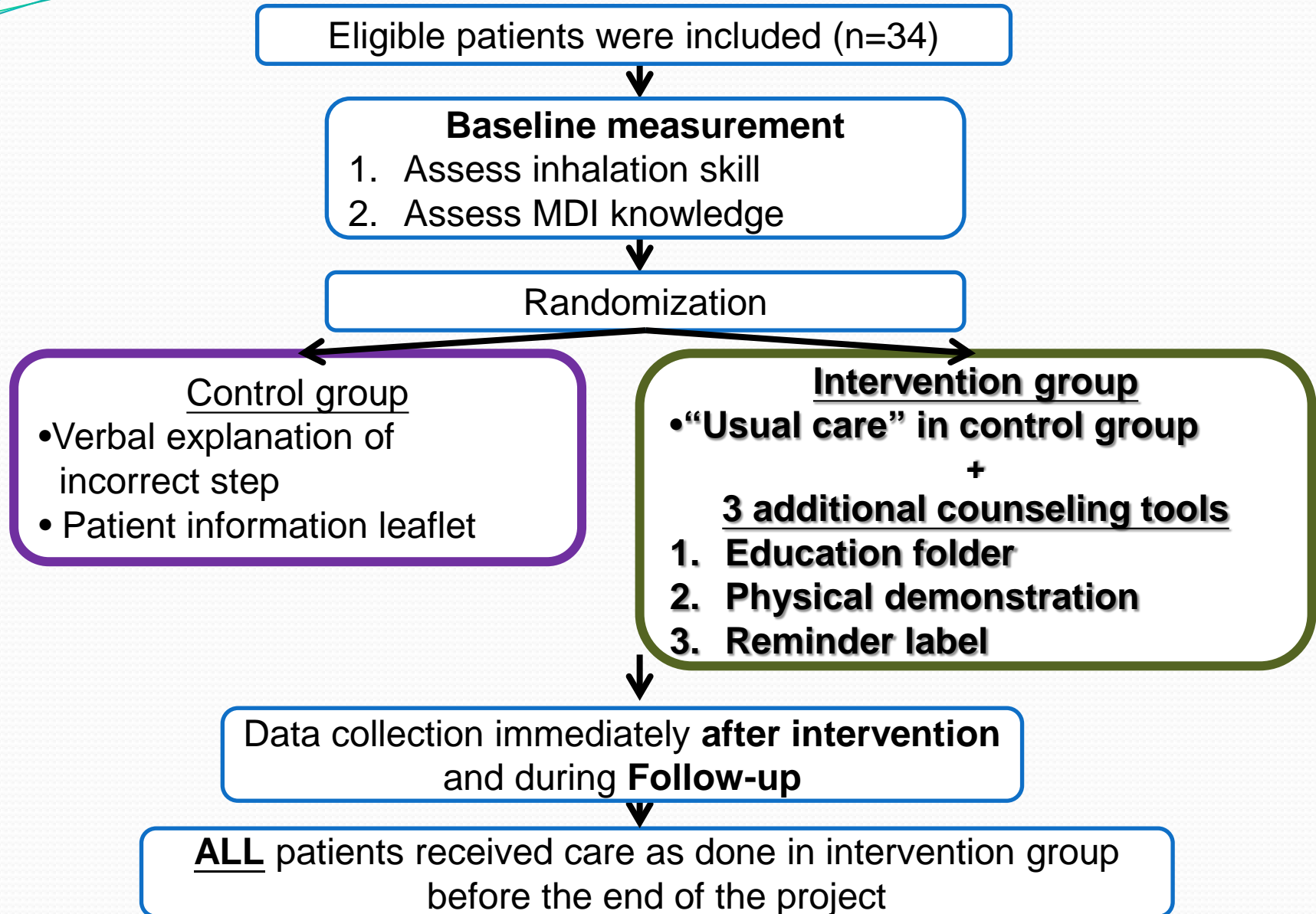
1. MDI-users
2. >18 years old
3. Self-administered the medication
4. Hear voice and communicate properly
5. Can read

Exclusion criteria:

Patients who

1. Use volumatic spacer
2. First-time MDI users
3. Medical staff
4. Have cognitive impairment

Study design



Intervention group

壓縮吸入器 (Metered-dose inhaler) - 病人教育資料

(請注意：此教育單張只包含於牛頭角賽馬會普通科門診所配發的)

1 藥物種類

1.1 氣管舒張劑

作用：

- 舒張氣管
- 令呼吸回復暢順

備註：

- 醫生或會根據病情
- 每天使用或需要
- 可隨身攜帶作急

1.2 類固醇吸入劑

作用：

- 幫助氣管消炎
- 預防復發

備註：

- 這類藥物需要長期服用，才能幫助預防病發

在沒有氣管發作的日子，
你也需要吸用此類吸入
劑作預防用途!!!!

2 使用方法 (配合實際示範)

使用壓縮吸入器
能直接將藥物帶到氣
管，減低出現全身性副作用的

打開吸咀蓋

上下搖勻吸入器

預備

KEEP OUT OF REACH OF CHILDREN

小心放置，以免兒童誤服

024 1. 打開吸咀蓋

2. 上下搖勻吸入器

3. 吸入器較長的一邊向上

4. (像吹蠟燭般) 慢慢地呼出一口氣

5. (像吸飲管般) 將吸咀完全含著

6. 按下藥筒 並同時 用口深吸氣直到吸盡為止

7. 忍住呼吸約10秒

HOSPITAL AUTHORITY

醫院管理局

5 注意事項

5.1 “以上所說的 2 種吸劑我都需要使用，我應該先用哪一種??”¹



或
兩口；我應該在口中連續按下吸

OF CHILDREN 小心放置，以免兒童誤服
咀蓋
勻吸入器
較長的一邊向上
燭般) 慢慢地呼出一口氣
管般) 將吸咀完全含著
筒 並同時 用口深吸氣直到吸盡為止
吸約10秒
醫院管理局

Results

Characteristics	Total (n=34)	Intervention Group (n=17)	Control Group (n=17)
Age, years	44.4	44.8	71.8
Gender			

Change in MDI technique

<u>Outcome measurement</u>	<u>Control group</u> (n=17)	<u>Intervention group</u> (n=17)	<u>Mean difference</u> (95%CI)	<u>P value</u>
MDI technique %correct				
Baseline	24%	6%		
Immediately after intervention	59%	100%	41% (15%-67%)	0.004*
Follow-up	29%	71%	42% (8%-74%)	0.016*

Living Condition			
Live alone	9 (26.5%)	5 (29.4%)	4 (23.5%)
With family/OAH	13 (38.2%)	12 (70.6%)	13 (76.5%)
Diagnosis			
Asthma	12 (35.3%)	9 (52.9%)	5 (29.4%)

Change in MDI Knowledge

<u>Outcome measurement</u>	<u>Control group</u> (n=17)	<u>Intervention group</u> (n=17)	<u>Mean difference</u> (95%CI)	<u>P value</u>
MDI knowledge score				
Baseline	5.88	5.24		
Follow-up	6.71	7.71	1.00 (0.42-1.58)	0.002*

* Data are given as number (percentage) except where indicated.

Conclusion

- Additional counseling tools were used in this project to compare pharmacist's intervention with usual care
- Statistically significant increase in MDI technique and knowledge was found between control group and intervention group
- Baseline incorrect MDI techniques and misunderstandings were identified
- On-going education should be provided

Recheck & re-educate on
regular and on-going
process

Focus more on
misunderstandings found
in this project

Set up pharmacist-led
counseling session to
MDI-users in GOPC



Thank you!

Data collection

Type of data	During 1 st visit		Follow-up	Tool used	Measurement
	Baseline	Immediately after intervention	Follow-up		
Inhaler technique	Yes	Yes	Yes	8-point checklist (Dutch Asthma Foundation)	Difference in proportion of patients who demonstrated correct MDI technique * between groups
Inhaler knowledge	Yes	---	Yes	Knowledge questionnaire (Self-developed)	Difference of mean score of questionnaire between groups

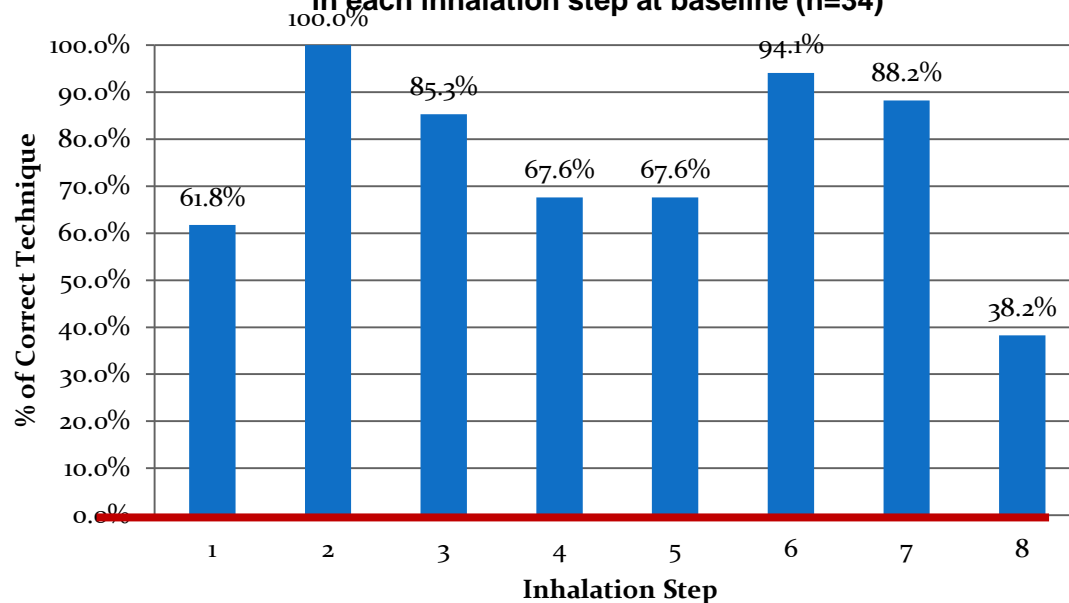
* "Correct MDI technique" = perform 8 steps correctly

問題	病人回應			正確答案
	正確 (T)	不正確 (F)	不知道	
1. 使用類固醇吸劑能幫助氣管消炎。				T
2. 如需同時吸氣管舒張劑及類固醇吸劑，應根據以下哪種吸服次序？ (1)先用氣管舒張劑、然後才用類固醇吸劑 (2)先用類固醇吸劑、然後才用氣管舒張劑	(1)	(2)		(1)
3. 氣管舒張劑吸入器應該隨身攜帶。				T
4. 每次使用氣管舒張劑後，應用清水漱口以減低副作用。				F
5. 每次使用類固醇吸劑後，應用清水漱口以減低副作用。				T
6. 清洗吸入器時應該將金屬容器和塑膠吸入器一起清洗。				F
7. 每次使用吸入器前應該將吸入器搖勻。				T
8. 假如醫生要求我每次吸入 2 劑量(2 下)，我應該在同一次呼吸中按 2 下藥筒。				F
總分				

1. Shake the inhaler
2. Remove the protective cap
3. Hold inhaler upright
4. Exhale to residual volume
5. Place mouthpiece between lips and teeth
6. Inhale slowly and simultaneously activate the canister
7. Continue slow and deep inhalation
8. Take inhaler out of mouth and hold breath for 5-10 sec

Percentage of patients who demonstrated correct technique/ step at baseline

Percentage of patients who demonstrate correct technique in each inhalation step at baseline (n=34)

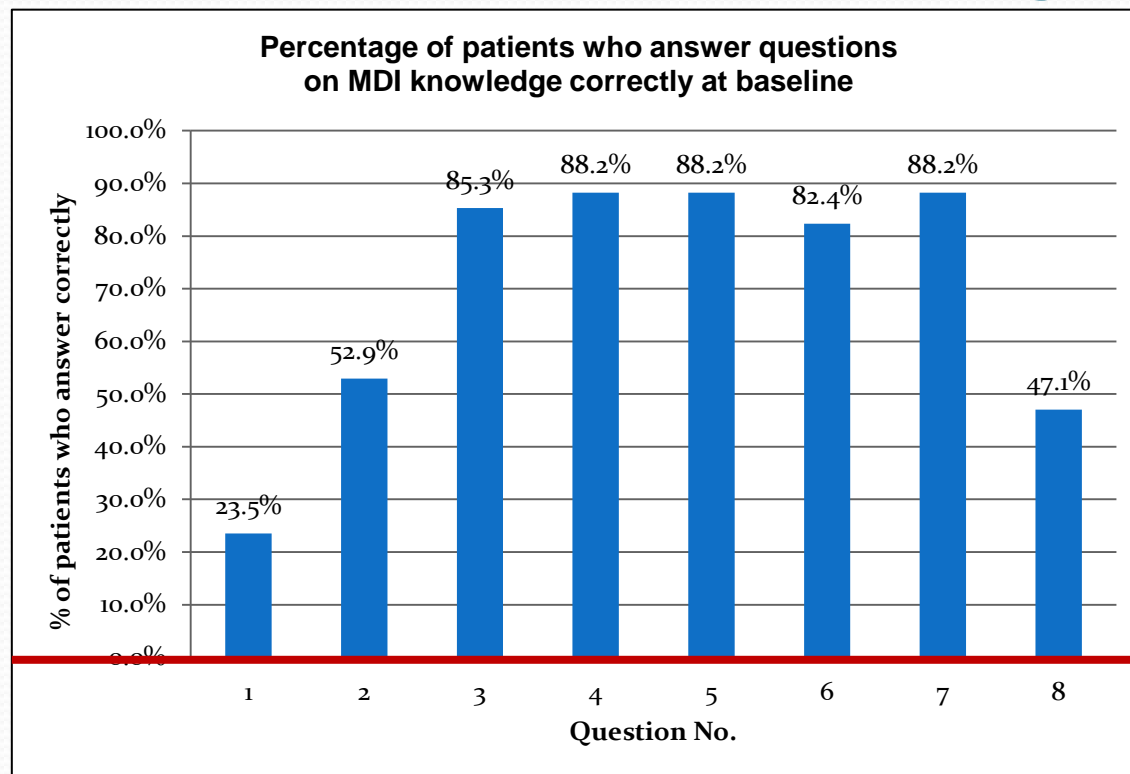


MDI step:

Step 8: Take inhaler out of mouth and hold breath for 5-10 sec.

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Baseline MDI knowledge



MDI knowledge questions:

Q1: Action of inhaled corticosteroid (ICS)

Q8: Correct inhalation method of “2 puff/ dose”

Questions
1. Use of inhaled corticosteroid (ICS) can help to tackle the problem of inflammation.
2. If bronchodilator and inhaled corticosteroid(ICS) have to be used at the same time, what is the correct sequence? (1) bronchodilator first, then ICS (2) ICS first, then bronchodilator
3. One should bring bronchodilator all along when leaving home.
4. Mouth-rinsing is needed after using bronchodilator.
5. Mouth-rinsing is needed after using ICS.
6. I should clean both the metal canister and plastic mouthpiece.
7. I should shake the inhaler before use.
8. If doctor ask me to inhaler 2 puff each time, I should actuate inhaler twice in the same breath

Discussion – Compare with previous local studies

	Luk HH	Leung WY	This project
Control group	No	No	Yes
Education provided	<ul style="list-style-type: none"> • Verbal • Physical demonstration 	<ul style="list-style-type: none"> • Verbal • Written material 	<ul style="list-style-type: none"> • Verbal • Physical demonstration • Additional tools (Education leaflet, Reminder label)
No. of follow up	1 (1-2 months later)	1 (4-8 weeks later)	1 (mean follow-up: 67 days)
Sample size	28	80	34
Improvement in MDI technique *	61% → 82% (% of correct technique)	2.58 → 5.09 (Full score: 6)	41% (between intervention & control group)

* Different scoring systems are used.



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