

**Multi-disciplinary shared-care in  
triage and clinical management  
enhanced Safety, Efficiency & Quality  
in managing mechanical back & neck  
pain:**

**A multi-centers study involving  
9 acute hospitals**

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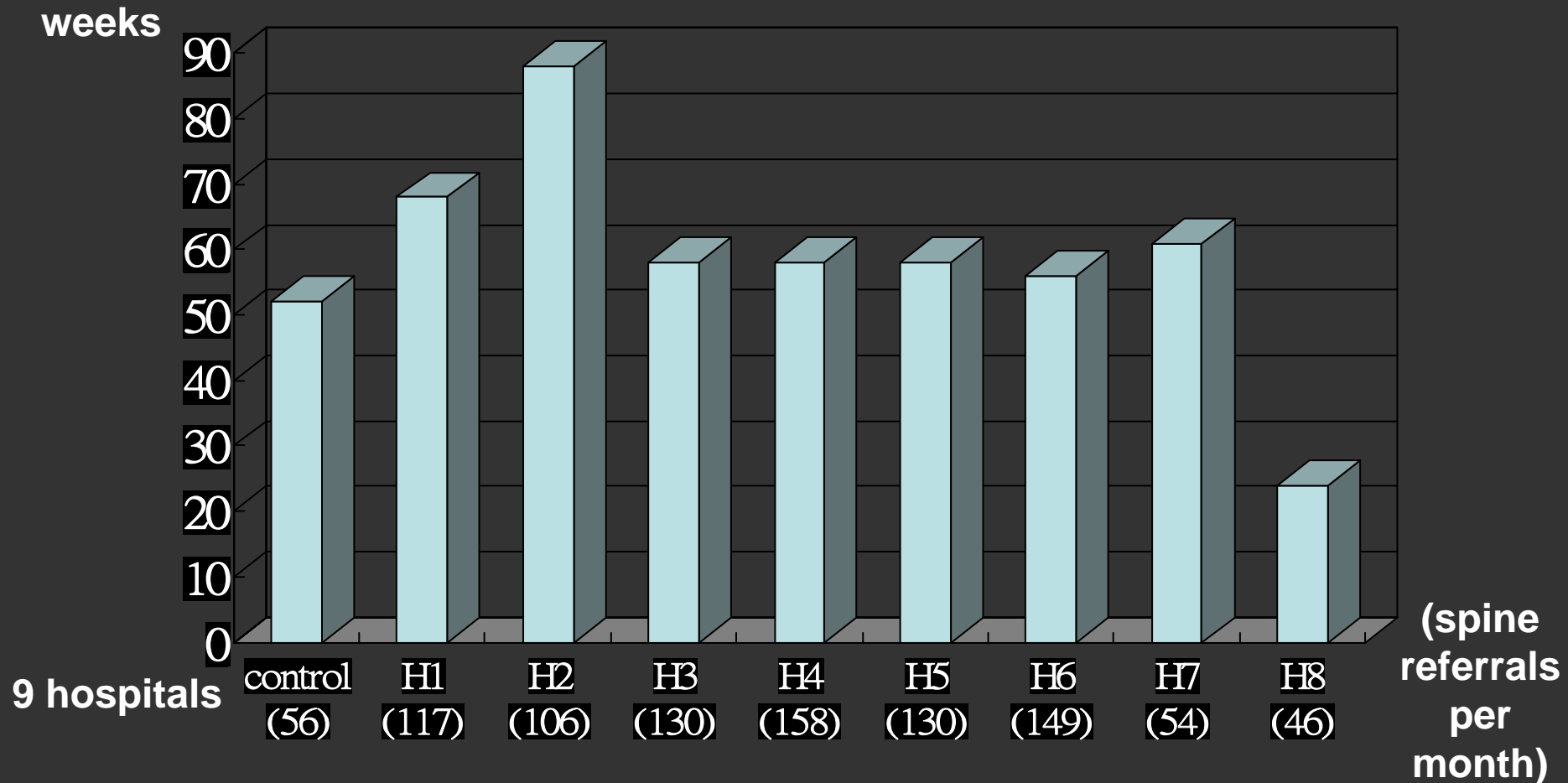
**Family Medicine:**

HKEC & HKWC15, NTEC16, KWC17, HAHO25

# Problem: Heavy demand on O&T SOPD

Large volume of patients with axial spine pain

Long waiting time for routine spine case  
(median [9 hospitals]: 55 weeks)



# Task Force on Back Pain Management (O&T COC) : Aims

1. Establish effective **triage** & appropriate **referral** system
2. Allocate patients to **appropriate level of medical care**
3. **Timely** medical consultation
4. Promote the correct attitude and habit of patient
5. Consolidate **cooperation** among generalist, therapist & specialist

## Optimal Outcome:

1. Improve triage quality
2. Timely medical attention
3. Efficient shared medical care
4. Effective medical treatment, improved health outcome
5. Minimize disease chronicity and treatment dependency
6. Safe/ Effective/ Efficient

# First Challenge:

## Back & Neck Pain- Difficult in Triage

- Symptoms
- Heterogeneous diagnoses
- Difficulty to determine its severity
- No unified objective assessment methods

# Referral letters Quality Audit

## Focus on 15 Audit Items (Aug 2005)

- 1. Diagnosis
  - 2. Duration of symptoms
  - 3. Major chief complaint
  - 4. Aggravating factors
  - 5. Easing factors
  - 6. Response to previous treatment
  - 7. Past Health
  - 8. Range of motion
  - 9. Sensation
  - 10. Motor weakness
  - 11. Tenderness
  - 12. Nerve root tension
  - 13. Red Flag ruled out
  - 14. X-Ray results
  - 15. Other Ix results (e.g. blood tests, MRI)
- 60 referrals audit
  - Mean score: 5.4 items included in referral (out of 15 items)
  - Information from referral letters was not adequate for effective triage

# Strategy 1: Unified Reliable Triage Tool Spinal Problem Questionnaire

醫院管理局/香港東聯網 矯型及創傷外科/脊椎科 脊椎毛病徵狀問卷調查 (新症病患者用) (此問卷是為了解有頸、背、腰痛或手脚無力、麻痺、不靈活病患者之徵狀，如你現在的徵狀是其他部位痛楚，請不用填寫此問卷)		入院/門診號碼 _____ 身份證號碼 _____ 姓名(英文) _____ 性別 _____ 年齡 _____ 姓名(中文) _____ 部門 _____ 病房 _____ 床號 _____				
日期: _____ 1. 現在的徵狀持續了多久 _____ 日 / _____ 週 _____ 月 / _____ 年	用( ) 選擇最貼近你徵狀的答案	7. 下列那種情況加劇痛楚? (如痛楚部位多於一個，請列明: _____) 該敬 上樓梯 落樓梯 向前彎腰 向後拗腰 長時間坐 持續站立/步行 頸部活動 以上全部 其他，請列明: _____	10. 請在上面兩個人像圖畫上用斜紋顯示你現在痛楚的位置 用小黑點顯示你現在麻痺的位置			
2. 你現在有沒有痛楚 沒有(不用作答 3-8 題) 有		8. 那種方法能舒緩痛楚? (如痛楚部位多於一個，請列明: _____) 止痛藥 熱敷 運動 休息 沒有方法 其他，請列明: _____				
3. 你現在痛楚部位是 背 腰 臀部 大腿 小腿 腰部伸延至臀部或大腿 腰部伸延至小腿 頸 頸部伸延至上肢 其他，請列明: _____		9. 你現在有沒有麻痺? 沒有 (左/右)一邊上肢麻痺: 左右兩邊上肢麻痺 (左/右)一邊下肢麻痺: 臀部/ 小腿/ 左右兩邊下 四肢麻痺 下肢麻痺				
4. 有/頻痛時，臥床休息能否舒緩? (如痛楚部位多於一個，請列明) (如無此徵狀，不用作答此題)	疼痛無改變 不能，痛楚反而加劇					
5. 你的痛楚為 (如痛楚部位多於一個，請列明: _____) 問歇發生 有好轉 時好時壞 做某些動作時，經常痛(身、負重) 痛楚程度增加 持續日夜疼痛，無間斷						
				11. 你現在有沒有手脚乏力? 沒有 (左/右)一邊上肢無力: (左/右)一邊下肢無力: 左右兩邊上肢無力 左右兩邊下肢無力 四肢無力	17. 在你持續站立/步行後，當出現背、臀、腳痛或麻痺加劇等，如你坐下休息能否使徵狀舒緩? (如無此徵狀，不用作答此題)	能 不能，疼痛加劇 不能，背痛加劇 不能，腳痛加劇 沒有
				12. 你現在有否手都不靈活? (如扣鈕、使用食具、拿起細小物件)	18. 你現在有否大小便問題?	不能，疼痛加劇 不能，背痛加劇 不能，腳痛加劇 沒有
				13. 你現在步行時有沒有困難? 沒有 有，因為痛楚，難以開始步行 有，因為雙腳僵硬緊張，難以起步 有，因為易失平衡 有，因持續步行後下肢疼痛/無力/麻痺 有，因為其他原因(請列明: _____)	19. 有否下列病狀? 持續發燒 盜汗 體重不振 體重急劇大幅下降 以上全部都沒有	能 不能，疼痛加劇 不能，背痛加劇 不能，腳痛加劇 沒有
				14. 如果你有手脚麻痺、手脚乏力、手脚不靈活或步行時困難徵狀為? (請註明) 首次發生 間歇發生 有好轉 時好時壞 做某些動作時，徵狀經常出現 不適持續，沒有好轉 不適程度不斷增加	20. 有否下列病歷? 請列明: _____ 糖尿病 長期服用類固醇藥物 濫用藥物: 癌症: 腸胃潰瘍 內科疾病: 對藥物/食物有過敏反應 以上全部都沒有	能 不能，疼痛無改變 不能，背痛加劇 不能，腳痛/麻痺反而加劇
				15. 你現在能否持續步行/站立? 如步行至市場買糕/酒樓飲茶/公園做運動 如站立洗臉刷牙/準備做飯菜/洗滌/等候公共汽車	21. 頸背有否曾經受傷? 沒有 有，請列明: _____	能 不能，疼痛無改變 不能，背痛加劇 不能，腳痛/麻痺反而加劇
				16. 在持續站立/步行時，如你向前彎腰，能否舒緩背、臀或腳痛/麻痺等徵狀? (如無此徵狀，不用作答此題)	22. 有否接受過脊椎手術? 沒有 有，請列明: _____	能 不能，疼痛無改變 不能，背痛加劇 不能，腳痛/麻痺反而加劇
					23. 你的職業: 請列明: _____	能 不能，疼痛無改變 不能，背痛加劇 不能，腳痛/麻痺反而加劇
					24. 你現在其他的徵狀: 請列明: _____	能 不能，疼痛無改變 不能，背痛加劇 不能，腳痛/麻痺反而加劇

Checking for complicated pathologies:

Cord Signs/ Spinal Claudication/  
Red Flags Signs (infection/  
tumour/ fracture)



# Validity of Spinal Problem Triage Questionnaire:

Diagnosis matching during first O&T SOPD consultation, 1st tested in 2005 (290 pts)

Diagnosis	Number	Average completion	Matched diagnosis
Mechanical back & neck pain	108	85.6%	89.8
Cervical myelopathy	7	93.6%	85.7%
Cervical / Lumbar Radiculopathy	29	86.5%	82.8%
Spondylosis	33	72.8%	72.7%
Spinal stenosis	22	80.2%	81.8%
Sub-total:	199	83.7%	82.6%
Others	12		
No diagnosis	34		
Total answered	245 (84.4%)	78.8%	72.7%
Unanswered questionnaire	45(15.6%)		



# Diagnosis matching [2nd tests: 8 hospitals] (2007-8):

## Kappa value:0.735

		Definitive diagnosis <u>6 months</u> after triage						
		Central neck/ back pain Sensitivity: 86.7%	Cervical/ lumbar radiculopathy Sensitivity: 89.2%	Cervical myelopathy	Spinal stenosis	Red flag condition: infection/ tumour/ fracture	Not spinal	Total
<b>Prelim. Diagnosis</b>	Central neck/ back pain	209	17	1	0	0	5	232
	Cervical/ lumbar radiculopathy	28	222	0	6	0	11	267
	Cervical myelopathy	0	2	3	0	0	0	5
	Spinal stenosis	1	3	0	11	<u>1</u>	0	16
	Red flag condition: infection/ tumour/ fracture	2	1	1	2	9	1	16
	Not spinal	1	4	0	0	0	11	16
	<b>Total</b>	<b>241</b>	<b>249</b>	<b>5</b>	<b>19</b>	<b>10</b>	<b>28</b>	<b>552</b>
<b>Specificity</b>		<b>93.5%</b>	<b>94%</b>					

# Shared Care:

## Pilot test

(Oct 05- Mar 06)

1 year FU)

- Routine case  
waiting time: from 58 to 24wks (↓ 48%)
- P1/2 to routine case  
ratio -1:1.75 → 5:1 (↑8X)

Spine Specialist

FM waiting time: 4-5 wks

Consultation no.: mean 2 (80% <3)

A&E attendance: 15 patients

Family physician (394 patients, 7 [1.8%] refused)  
(Triage)

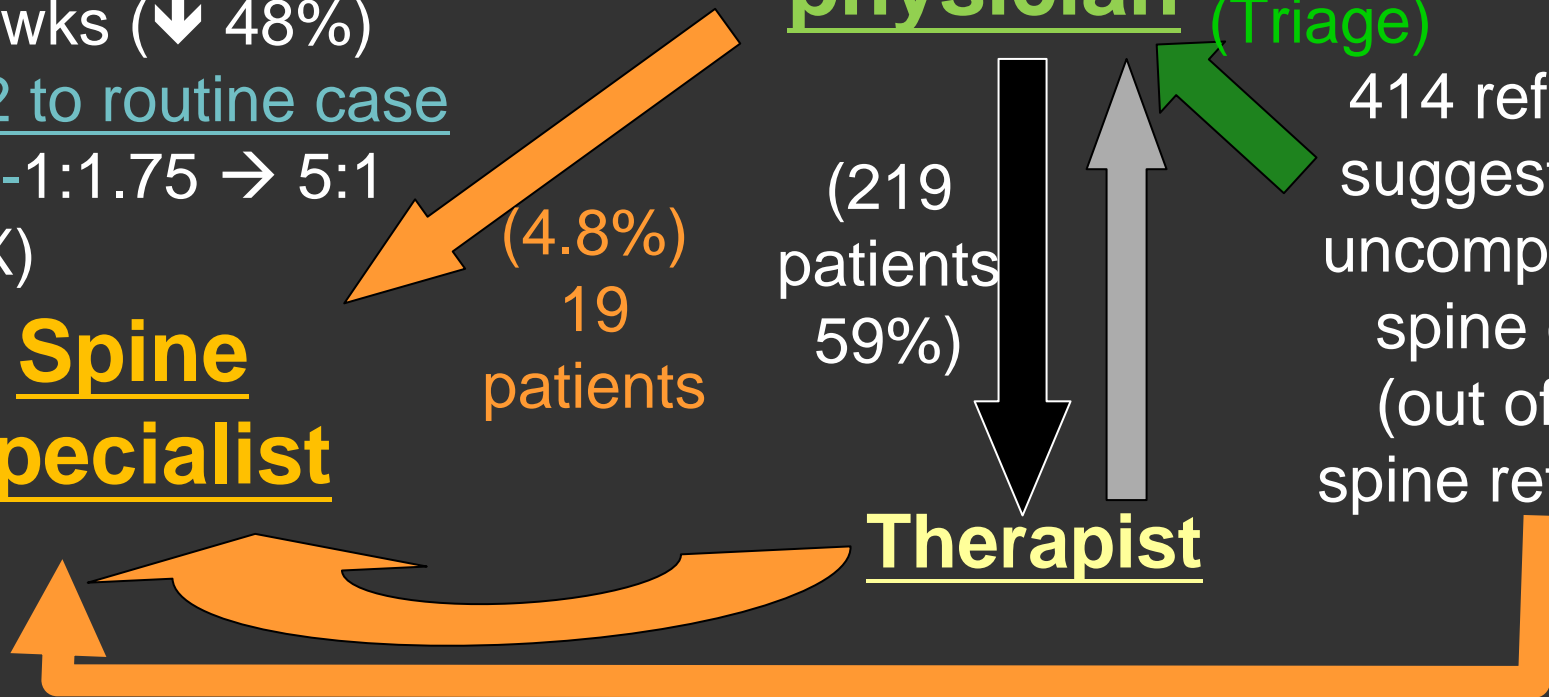
414 referrals suggestive of uncomplicated spine case (out of 985 spine referrals)

(219 patients 59%)

Therapist

(4.8%)  
19 patients

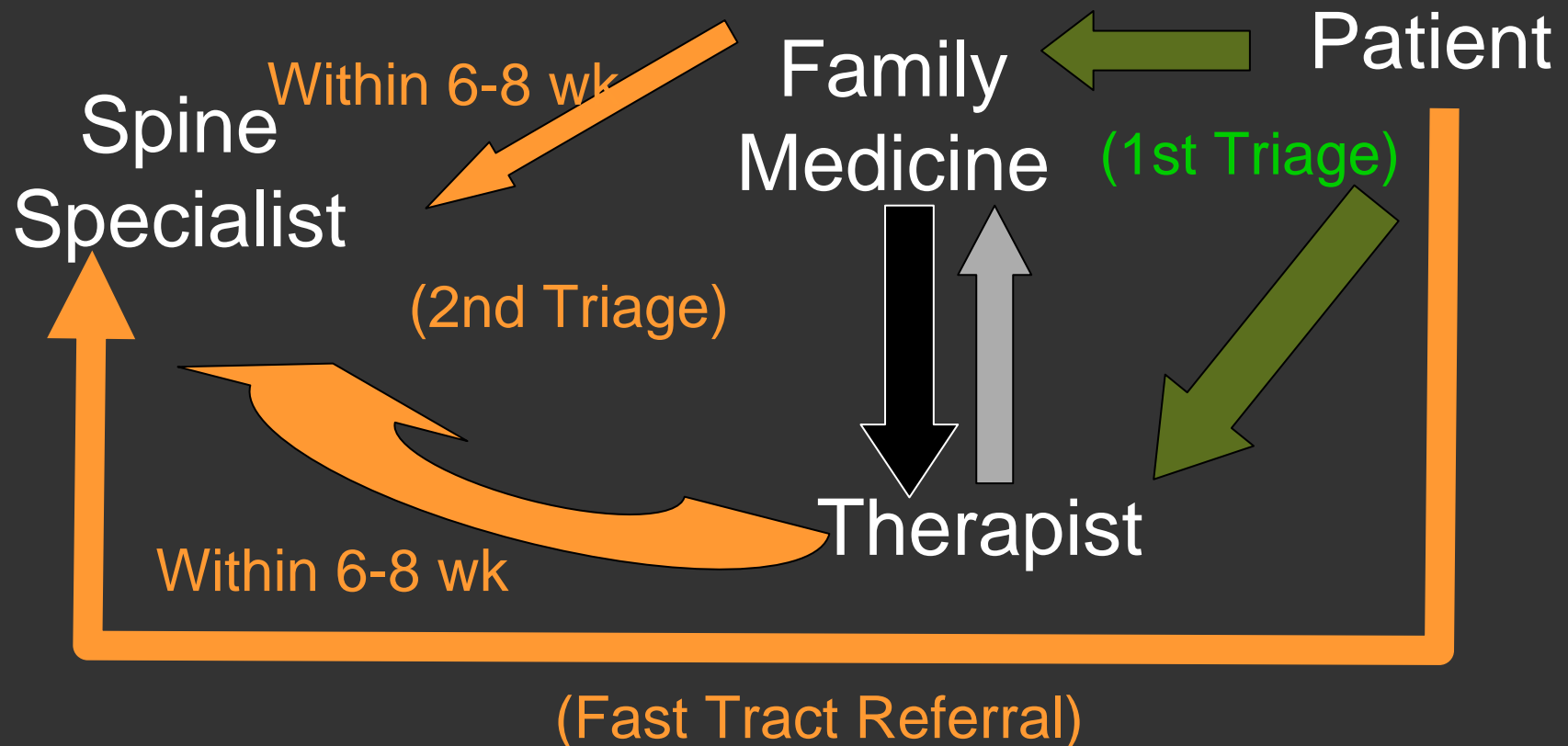
(13 patients 2.9%, triage as P1/ P2 case)



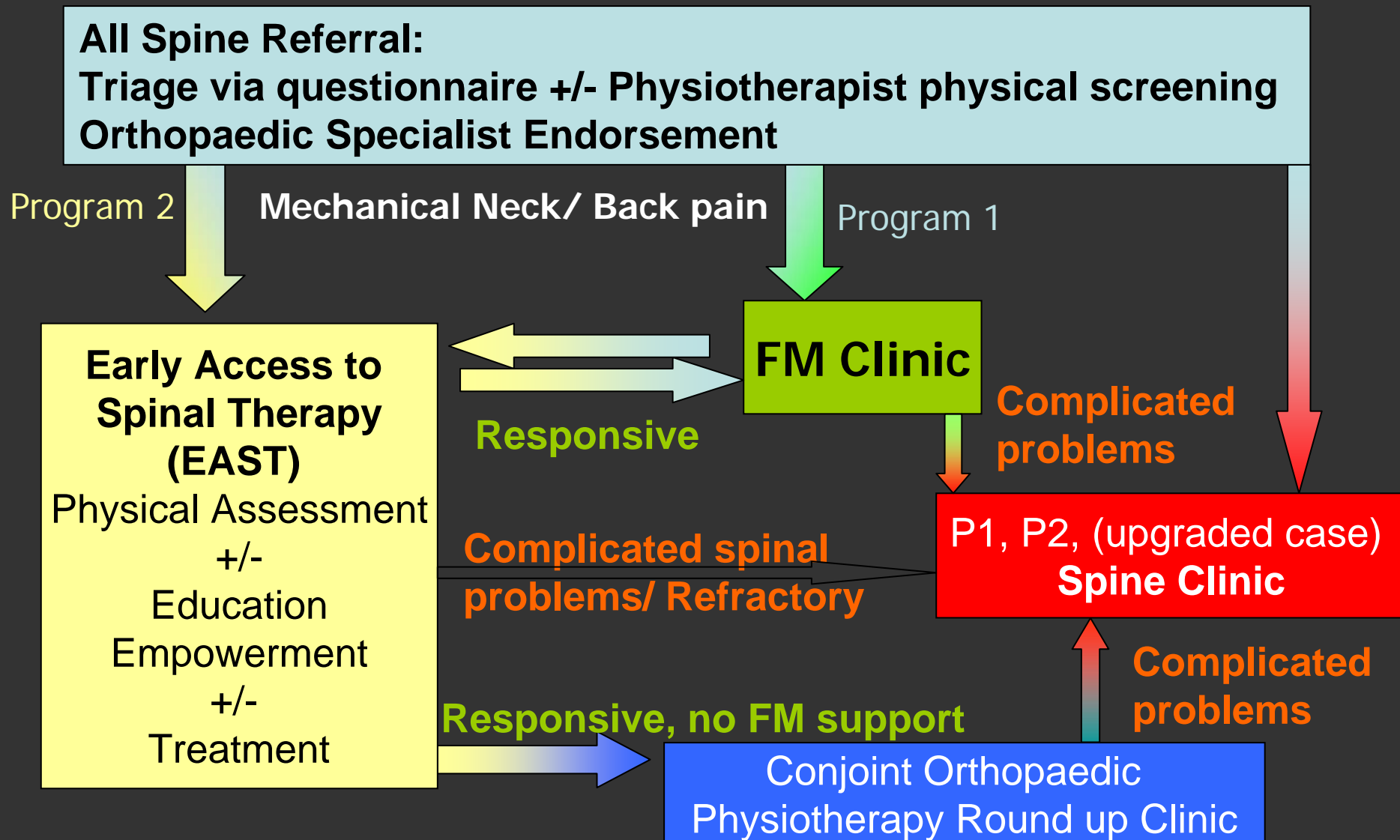
# Keys to Patient's acceptance:

-Patient's understanding (+ patient has a choice):  
knowing that the unified assessment questionnaire was designed by & the assessment results will be seen by orthopaedic specialist

-A fast tract referral (6-8 weeks) of complicated or refractory cases to Orthopaedic specialist was present to ensure safety



# Family Medicine / Physiotherapist gate keeping Orthopaedic Back Up (07-08 project, 8 hospitals)



# Results: 8-hospitals

## Prospective study

(Recruitment Jul- Sep 07,

FU-duration: 6 months)

### Family Medicine Clinic

FM waiting time:  
median 3 wks,  
<70% 5wks, 100%  
8 wks

Consultation no.:  
3 (98%)

A&E attendance: 14  
patients (3.3%)

467 Routine  
Back Case

### Orthopaedic Specialist clinic

(50% cases: 3.3 +  
3.6 + 1.8 + 11.3 + 14.1 +  
54.8 x 0.3)

Within 6-8 wk

(12 patients  
3.6%)

Physiotherapist 23.7% (585 referrals)

(243 patients, 54.8%)

Sessions: 9[50%],  
13[70%], 17[90%]

Within 6-8 wk

(53 patients/ 11.3% routine referrals triage as P1/P2 cases)

65 routine cases refused to FM [14.1%]

**Results: 7-hospitals**  
**Prospective study**  
**(Recruitment Jul- Sep 07,**  
**FU-duration: 6 months)**

**Family  
Medicine  
Clinic**

**FM waiting time:**  
median 3 wks,  
<84% 5wks, 100%  
8 wks

**(151 patients,  
70%)**

**Consultation no.:**  
3 (95.6%)

**A&E attendance: 3  
patients (1.4%)**

**Orthopaedic  
Specialist clinic** (3 patients 2%)

(2 patients, 1.3%)

**215 Routine  
Neck Case**

**Physiotherapist**  
**(78.1%)**

**(271 referrals)**

**(17 patients/ 7.9% routine referrals triage as P1/P2 cases)**

**39 routine cases refused to FM [18.1%]**

Control		Frequency	Percent	Cumulative%
Valid	Predominant back symptoms	37	41.1	41.6
	Predominantly leg symptoms	22	24.4	66.3
	Back & leg symptoms similarly involved	30	33.3	100.0
	Total	89	98.9	
Missing	System	1	1.1	
Total		90	100.0	

**Case match**  
**Study (Back):**  
**Control & study groups are matched**

**Control cases (90)**

	Control	Study
Age	47.4	51.6
Sex	M:51.1 F:48.9	M:35.1 F: 64.9

**Predominant symptomatic areas involved:**

Study (Back Case)		Frequency	Percent	Cumulative %
Valid	Predominant back symptoms	213	45.6	46.0
	Predominantly leg symptoms	114	24.4	70.6
	Back & leg symptoms similarly involved	127	27.2	98.1
	Predominantly neck symptoms	5	1.1	99.1
	Neck & arm symptoms similarly involved	4	.9	100.0
	Total	463	99.1	
Missing	System	4	.9	
Total		467	100.0	

**Study cases (467)**

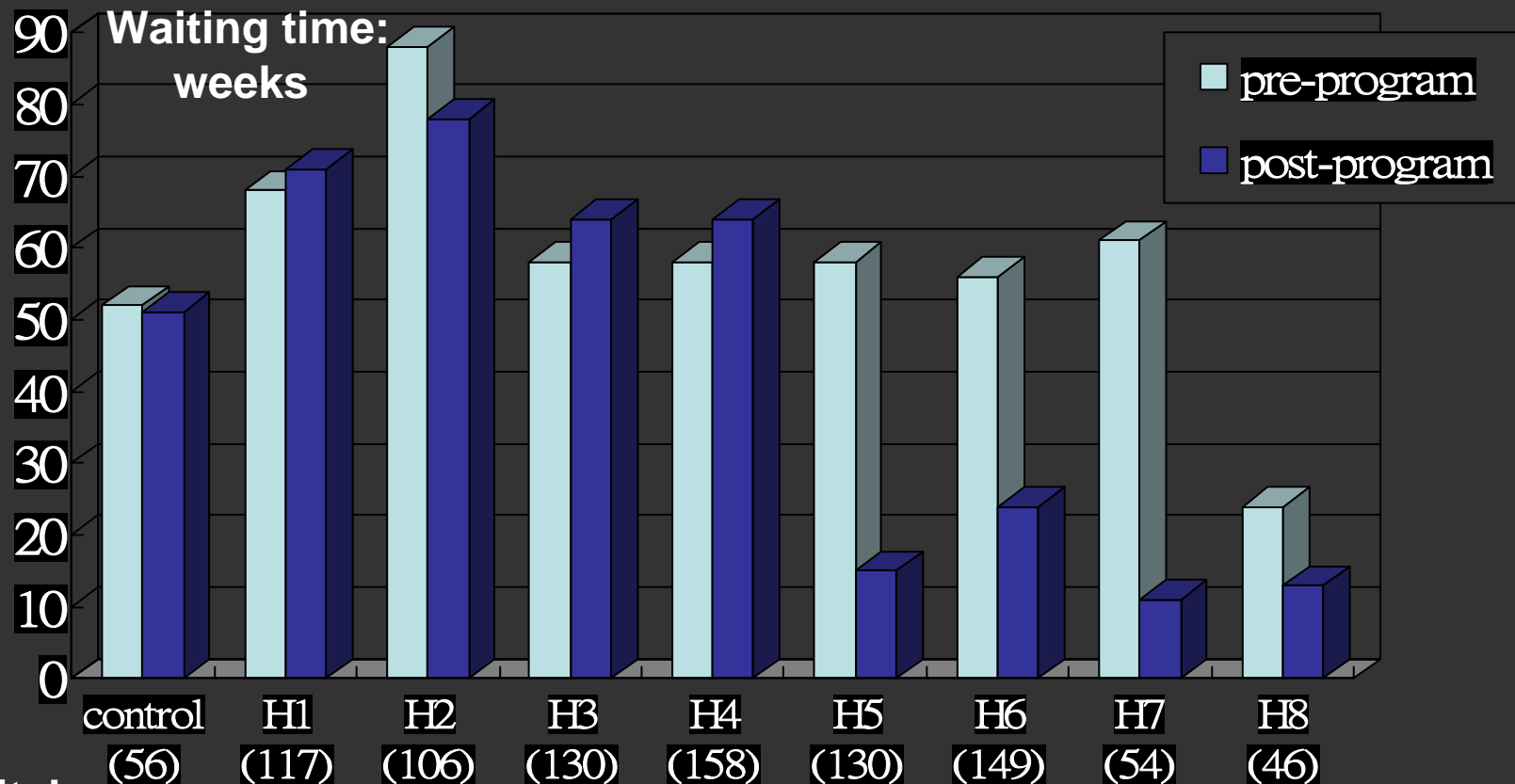
**Missing data: few**

# Clinical & Functional Outcome (after 6 months)

*=PT cases/ #=all cases	Control (90 back)	Study (467)	Sign.	Study vs. control
*Roland Morris disability score	10.47	6.15	<0.001	Less self-perceived disability
*Numeric pain s.	4.735	2.418	<0.001	Lower pain score
*Mean rank of improvement	32.4	97.7	<0.001	More patient in study group improved
*Numeric gross response score	1.412	6.825	<0.001	Higher percentage of improvement
#Day absent work (pain)	2.38 +/- 6.36	0.32 +/- 1.47	Median:0 Both gp.s	Less day work absent
#Minor pain attack (baseline)	18.56 +/- 11.7	12.49 +/- 24.6		
#Minor pain attach (at 6 M)	17.18 +/- 12.5	7.1 +/- 12.07		Fewer pain attacks
#A&E consultation	23.5%	3.3%	<0.001	smaller % attend A&E for same spine problem



# Waiting time for routine spine case [9 hospitals]: before and after program (referral no./ month)



9 hospitals:

**Decreased waiting time for Hospital 5-7 (started program in 2006) & Hospital 8 (other hospitals: no FM support, \$0 consultation fee, ? reason)**

# Task Force on Back Pain Management (O&T COC) : Aims

1. Establish effective triage & appropriate referral system
2. Allocate patients to appropriate level of medical care
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4. Promote the correct attitude and habit of patient
5. Consolidate cooperation between generalist & specialist

## Outcome:

1. Improve triage quality
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# Strategy 2: The circles of shared responsibility

Disease sophistication

## Family Physician

Holistic care

Health education

Primary prevention

Treatment of uncomplicated disease

Secondary triage

## Therapist

Triage: primary/secondary

Health education

Physical training

## Orthopaedic Specialist

Protocol & system design

Treatment of complicated disease

which required special technique or experience, multi-disciplinary contribution or surgical intervention

Lead outcome study to improve clinical outcome

Back up on :

- Grey clinical situation
- Difficult patient
- Sophisticated socio-legal issue
- Repeated health care utilization

Provide Training to other health care providers

Disease diversity

## Next step: Complicated spinal problems (P2) timely primary & secondary triage program

- Protocol designed, tests interpretation and system control by orthopaedic surgeons for
  - Spinal claudication
  - Incapacitating Sciatica
- Primary Triage by questionnaire by therapist
- Secondary triage with functional physical tests, therapeutic trial with physical training by therapist
- Stable cases:
  - spaced out follow up consultations
- Patients refractory to active conservative treatment /compromised function/ deterioration:
  - Early consultation (Fast Track channel)
  - Early definitive (surgical) treatment planning

# Spinal Claudication:

## Physiotherapist triage/ rehabilitation (EAST) & Early Orthopaedic definitive treatment

Triage effectiveness:

A+C+D

92.7%

Nov 07-Jan 08

100 referral letters  
? Spinal claudication:

A: Incapacitating spinal claudication: 13 cases

- Operation scheduled: 4
- Refused operation: 7
- OT not suggestive: 2 [old age]

Enhanced safety: A  
23.6%

23 refused PT assessment  
before O&T consultation

B: Poor functional test results  
but tolerable symptoms: 4 (SOPD FU)

77 patients: Triage  
Objective functional testing  
Active physiotherapy  
55 cases completed

C: 20 spinal claudication cases responsive to  
active conservative treatment (space-out FU)

D: Found not suffering from spinal claudication:  
18 cases, no need for early consultation

Physiotherapy effectiveness: C  
36.3%