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Reduce unnecessary referrals to Orthopaedic Specialist Clinic – Usefulness of the STarT Back Screening Tool in Emergency Department for acute lower back pain

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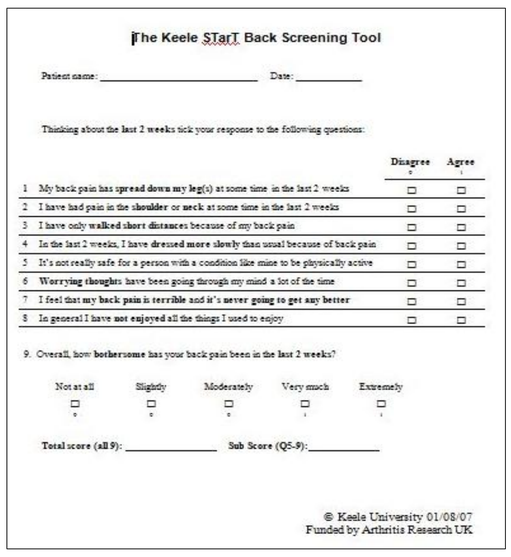
INTRODUCTION

What is Keele STarT Back Screening Tool (SBT)?

A short prognostic questionnaire to help identify modifiable risk factors (biomedical, psychological and social) for back pain disability and stratified cost-effective management. The resulting score stratifies patients into low, medium or high risk categories.


The Keele STarT Back Screening Tool

Patient name: _____ Date: _____

Thinking about the last 2 weeks tick your response to the following questions:

		Disagree 0	Agree 1
1	My back pain has **spread down my leg(s)** at some time in the last 2 weeks	☐	☐
2	I have had pain in the **shoulder** or **neck** at some time in the last 2 weeks	☐	☐
3	I have only **walked short distances** because of my back pain	☐	☐
4	In the last 2 weeks, I have **dressed more slowly** than usual because of back pain	☐	☐
5	It's not really safe for a person with a condition like mine to be physically active	☐	☐
6	**Worrying thoughts** have been going through my mind a lot of the time	☐	☐
7	I feel that **my back pain is terrible** and it's **never going to get any better**	☐	☐
8	In general I have **not enjoyed** all the things I used to enjoy	☐	☐

9. Overall, how **bothersome** has your back pain been in the last 2 weeks?

Not at all 0	Slightly 0	Moderately 0	Very much 1	Extremely 1
☐	☐	☐	☐	☐

Total score (all 9): _____ Sub Score (Q5-9): _____

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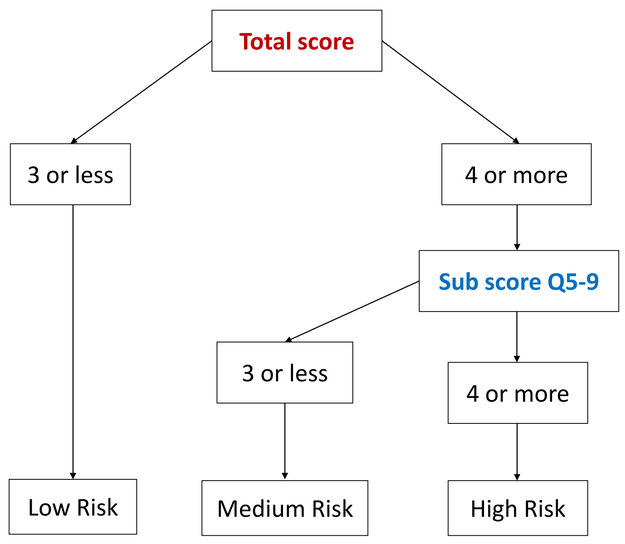


Risk Level	Recommended Management
Low	One-off consultation; Education; Encourage activity and self-management
Medium	Short course of Physiotherapy to restore function and minimize disability
High	Managed by Experienced Physiotherapist using combined physical and cognitive-behavioural approach to reduce pain, disability and psycho-social barriers to recovery. May need referral to Orthopaedics and/or Pain Specialists.

Problem

Most patients with acute lower back pain (LBP) are currently referred from Emergency Department (ED) to both Physiotherapy (PT) and Orthopaedic Specialist Outpatient Clinic (SOC). It is unknown if SOC appointments are actualised and referrals are required. Inappropriate referrals increase waiting time for new SOC appointments (Current waiting time: 2-4 months).

AIM

A prospective study to understand the ED discharge dispositions of patients with acute LBP in relation to risk categories, according to the SBT, and actualisations of SOC appointments to determine the need for SOC referrals .

METHOD

- SBT was administered to patients with primary diagnosis of LBP in ED.
- Interventions were at the discretion of ED doctors <u>blinded to scores of SBT</u>.
- Patients were followed up at 6-week and 6-month via telephone interview on change in pain score and actualisation of SOC appointments.

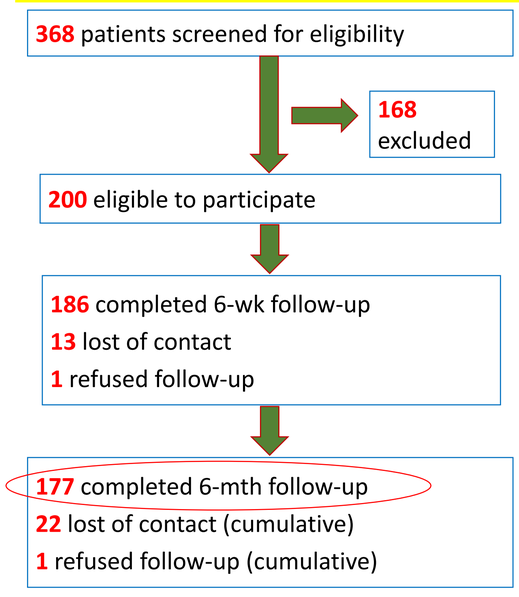
Inclusion Criteria:

✓Presented at SGH ED with acute low back pain;
✓Primary diagnosis (ICD code): 722, 723, 724, 7210, 7213, 7214, 7243, 7245;
✓Age: ≥ 21 years old.

Exclusion Criteria:

✓Have back pain in the past two years except this episode;
✓Have acute traumatic injuries in back;
✓Have secondary health conditions which require other concurrent interventions at ED.

RESULTS



Demographics	Completed 6-month follow-up (N=177)	Lost of contact or refused follow-up (N=23)
Age (mean, SD)	41.3 (14.2)	37.4 (13.6)
Male (n, %)	110 (62.1%)	12 (52.2%)
Chinese (n, %)	115 (65.0%)	10 (43.5%)
Malay (n, %)	29 (16.4%)	7 (30.4%)
India (n, %)	27 (15.3%)	5 (21.7%)
Others (n, %)	6 (3.4%)	1 (4.3%)
SBT Total Score (mean, SD)	4.6 (2.1)	5.3 (2.2)
SBT Sub Score (mean, SD)	2.6 (1.5)	3.0 (1.6)
Low Risk (n, %)	53 (29.9%)	7 (30.4%)
Medium Risk (n, %)	69 (39.0%)	5 (21.7%)
High Risk (n, %)	55 (31.1%)	11 (47.8%)
Pain Score at ED (mean, SD)	6.3 (2.5)	5.5 (2.6)

Table 1 : Patient Characteristics at Baseline (N = 177)

		All (N = 177)	Low Risk (N = 53)	Med Risk (N = 69)	High Risk (N = 55)
Age (year)	Mean (SD)	41.3 (14.2)	40.2 (15.5)	42.1 (14.4)	41.3 (12.6)
	Range	62 (83-21)	60 (83-23)	49 (70-21)	59 (80-21)
Gender	Male	110 (62%)	36 (68%)	44 (64%)	30 (55%)
	Female	67 (38%)	17 (32%)	25 (36%)	25 (45%)
BMI (kg/m²)	Mean (SD)	25.0 (4.9)	23.8 (5.2)	25.2 (5.3)	25.8 (4.1)
Medical history	Previous back pain (> 2 years)	46	10	24	12
Pain score at ED	Mean (SD)	6.3 (2.5)	6.0 (2.6)	6.1 (2.7)	6.9 (2.2)

There were no significant differences between groups (Table 1) except that pain score at ED of high risk group was significantly higher than that of low risk group ($p = 0.039$).

What were the ED discharge dispositions?

ED doctors referred 56% of patients with LBP to SOC (Table 2). 66% were referred for Physiotherapy management.

Table 2 : ED discharge options		All (N = 177)	Low Risk (N = 53)	Med Risk (N = 69)	High Risk (N = 55)	Lost of Contact (N = 23)
1	**No referral needed**	43 (24.3%)	18 (34%)	13 (18.8%)	12 (21.8%)	2 (8.7%)
2	**Referred for PT only**	34 (19.2%)	14 (26.4%)	11 (15.9%)	9 (16.4%)	6 (26.1%)
3	**Referred for SOC only**	**17 (9.6%)**	0 (0%)	8 (11.6%)	9 (16.4%)	2 (8.7%)
4	**Referred for both PT and SOC**	**82 (46.3%)**	21 (39.6%)	37 (53.6%)	24 (43.6%)	13 (56.5%)

How many patients actualised their SOC appointments ?

The actualisation rate for SOC appointments was 38% for all risk categories i.e. a high No-show rate: 62% (Table 3). The usual no-show rate in SOC is about 30%.

Table 3 : SOC actualisation rate	All (N = 177)	Low Risk (N = 53)	Med Risk (N = 69)	High Risk (N = 55)
Referred to SOC	99 (55.9%)	21 (39.6%)	45(65.2%)	33 (60%)
Actualization of SOC follow-up appointments at 6-month	**38 (38.4%)**	9 (42.9%)	14 (31.1%)	15 (45.5%)

What was the pain outcome for ED patients ?

More than 90% of patients had significantly reduced pain score on 6 months follow up, regardless of the Discharge Disposition (Table 4).

Table 4 : Improvement in pain score	All (N = 177)	Low Risk (N = 53)	Med Risk (N = 69)	High Risk (N = 55)
Better at 6-week	165 (93.2%)	51 (96.2%)	64 (92.8%)	50 (90.9%)
Better at 6-month	166 (93.8%)	50 (94.3%)	67 (97.1%)	49 (89.1%)

DISCUSSION

Can patients do without SOC referrals ?

From the high no-show rate at SOC (62%) and the improvement of pain score for 90% of patients with acute LBP regardless of discharge disposition and SBT risk categories, we can challenge the need to refer ED LBP patients to SOC (56%).

The fact that 66% were referred to Physiotherapy would suggest that we could change the model of care to refer all acute LBP patients to Physiotherapy instead, with the option for them to refer on to SOC if the patient was not improving.

CONCLUSION

This study shows that ED patients with acute LBP, with or without management by SOC doctors, showed improvement in their pain scores at 6 months follow-up for all SBT risk categories. Therefore, the need to refer such ED patients to SOC should be reviewed. A new model for referral to PT is proposed, which will help reduce the waiting time for SOC appointments.

Proposed management for acute LBP from ED