EVIDENCED-BASED APPROACH TO PROMOTE WORK SAFE BEHAVIOR

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Evidence-based approach to promote Work Safe Behavior Program
ACKNOWLEDGEMENTS

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Evidence-based approach to promote Work Safe Behavior Program
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- Statistics
- Limitations of the traditional measurement in safety
- Safe acts
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- Characteristic: Focus group / Checklist / Coaching
  (Hands on practice)/ Stretching exercise

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Evaluation
Results
Conclusion
Recommendation
References

Evidence-based approach to promote Work Safe Behavior Program
Supporting staffs are the most vulnerable persons

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Number of IOD cases related to MHO by Category in M&G Department, PMH from 2008 to 2010

Sprain & strain, Contusion & Abrasion are the most category for the nature of injury in the IOD cases

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LIMITATIONS OF THE TRADITIONAL MEASUREMENT IN SAFETY

In the past, many organizations had put much effort on its own occupational safe & health in the way of understanding the ordinances, work system improvement, health promotion, safety training & ensure a safe environment. However, those works might not lower down the IOD figures effectively and efficiently.

The weakness of traditional safety measurement (ie. IOD statistic) lies on its own accuracy. The system will be destroyed if the accident hadn’t reported.

On the contrary, the system of audit had been criticized for focusing on the documentation and process but neglect the workplace had achieved the safety requirement or not.
SAFE ACTS

- According to the report from the Advisory Committee on the Safety of Nuclear Installations in 1990, 20% of accidents were related to the inadequate of the equipment and facilities while 80% of accidents were associated with poor management, unqualified staffs and violated the safety guidelines.

- In order to diminish the accident rate, it is worth to change the unsafe act into safe act.
Work-related musculoskeletal disorders are commonly found in health care setting. (Alexopoulos, Burdorf & Kalokerinou, 2006; Smith, Choe, Jeon et al., 2005; Nahit, Hunt, Lunt et al., 2003)

Various levels of disorders may affect staff’s health and the ability to work. (Pransky, Benjamin, Hill-Fotouhi et al., 2002; Pransky, Benjamin, Hill-Fotouhi et al., 2000; Williams, Feuerstein, Durbin & Pezzullo, 1998)

Loss of productivity and staff shortage may in turn diminish the QOC associated with adverse patient outcomes. (Baldwin, 2004)
WORK SAFE BEHAVIOR PROGRAM

Objectives

1. To promote stretching exercise in order to improve staff’s own health
2. To provide education talks on ergonomic related issue
3. To help the staffs to understand self capability and own health status in order to cope with the physical demand of daily work
4. To evaluate the job task, work process, design/usage of tools and environment that may impose MHO health risk to staffs in view of ergonomic perspective
5. To offer tailor-made ergonomic intervention program (e.g. work posture, selection of tools, using mechanical/transfer aids properly, workplace design, etc.) to M&G Department’s staffs

Target

1. Supporting staffs in M& G Department
<table>
<thead>
<tr>
<th>Work Safe Behavior Working Group</th>
<th>Meeting with M&amp;G Dept’s staffs</th>
<th>Focus group</th>
<th>MHO TTTs</th>
<th>Evaluation</th>
<th>Report the observation about the program</th>
<th>Continuous the program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify the MHO task</td>
<td>i.e. Promote this Staff Wellness Program</td>
<td>Further to identify the MHO task</td>
<td>i.e. work out safe act checklist</td>
<td>i.e. Testing the baseline standard of captioned task and performing observation</td>
<td>Evidence- based approach to promote Work Safe Behavior Program</td>
<td></td>
</tr>
</tbody>
</table>
Focus group

Evidence-based approach to promote Work Safe Behavior Program
Checklist

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CHARACTERISTIC ABOUT THE WSB PROGRAM (3)

Coaching

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九龍西聯網物理治療部伸展運動
進行運動時，應注意：
1. 保持自然呼吸
2. 量力而為
3. 動作緩慢進行
4. 尷尬伸展肌肉有拉緊的感覺，停留在這個位置十至二十秒，然後慢慢地放，每組肌肉重覆二至三次。

頸部：
1. 左望右望
2. 側頭聆聽
3. 低頭仰望
4. 下頜內收

肩膊：
1. 托肘拉肩
2. 屈肘拉臂
3. 挺胸摺臂

腰背：
1. 兩側彎腰
2. 直伸腰背

大腿：
1. 坐式壓腿
2. 斜拉大腿

小腿：
1. 弓步拉腿

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STRETCHING EXERCISE (2)

Video & Practice

Evidence-based approach to promote Work Safe Behavior Program
1. 計劃初期由安全主管或顧問帶領
2. 由管理者、觀察員和工人的代表組成一個工作小組
3. 工作目標及時間表
4. 工作安全行為一覽表
5. 選擇觀察點
6. 制訂基準線
7. 對觀察人員進行培訓
8. 連續進行觀察
9. 分析結果及檢討

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DATA COLLECTION

- Consensus to identify the MHO task by the working group of the program & MHOTTTTs in focus group.
- Checklist of WSB program available which focus on procedure for napkin round.
- Each set of data included a quiz and a checklist about napkin round.
- 3 sets of data were collected before program implemented, 2 weeks & 10 weeks after the program.
DESCRIPTIVE DATA

Number of wards involved: 13

Each set of data included

- A quiz with 10 questions related to proper handling of MHO task
- Practical skill assessment on napkin round: 20 items

Total number of quiz & assessment collected

- Total number of quiz received: 306
- Total number of assessment: 375
EVALUATION

1. Analysis the quiz & practical skill.
2. Comparison IOD Rate
   (Total / MHO related) among in M&G Dept/ PMH & HA Group 1 Hospitals.
3. Comparison Sick Leave Rate
   (Total / MHO related) among in M&G Dept/ PMH & HA Group 1 Hospitals.
4. Satisfaction survey on the MHOTTTs & supporting staffs.

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FINDINGS (1) TESTING FOR DIFFERENCE (PAIRED T-TEST ONE TAILED)

<table>
<thead>
<tr>
<th>Quiz</th>
<th>Baseline — 2 Wks</th>
<th>Baseline — 10 Wks</th>
<th>2 wks—10 Wks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall</strong></td>
<td><strong>&lt;.0001</strong> 102</td>
<td><strong>&lt;.0001</strong> 102</td>
<td><strong>&lt;.0001</strong> 102</td>
</tr>
<tr>
<td>E1</td>
<td>0.178 7</td>
<td>0.2064 7</td>
<td>0.5 7</td>
</tr>
<tr>
<td>F1</td>
<td>0.1209 10</td>
<td>0.1815 10</td>
<td>0.7457 10</td>
</tr>
<tr>
<td>E2</td>
<td>0.1447 7</td>
<td><strong>&lt;.0001</strong> 7</td>
<td><strong>&lt;.0001</strong> 7</td>
</tr>
<tr>
<td>F2</td>
<td>0.0553 7</td>
<td>0.0079 7</td>
<td>0.0998 7</td>
</tr>
<tr>
<td>E3</td>
<td>0.0206 8</td>
<td>0.0047 8</td>
<td>0.0056 8</td>
</tr>
<tr>
<td>F3</td>
<td>0.4218 8</td>
<td><strong>&lt;.0001</strong> 8</td>
<td>0.0015 8</td>
</tr>
<tr>
<td>ELG1/CIC</td>
<td>0.0086 6</td>
<td>0.0005 6</td>
<td>0.0926 6</td>
</tr>
<tr>
<td>C3</td>
<td><strong>&lt;.0001</strong> 8</td>
<td><strong>&lt;.0001</strong> 8</td>
<td>0.9872 8</td>
</tr>
<tr>
<td>D3</td>
<td>0.0226 8</td>
<td>0.0128 8</td>
<td>0.0985 8</td>
</tr>
<tr>
<td>C6</td>
<td>0.0026 8</td>
<td>0.0019 8</td>
<td>0.0013 8</td>
</tr>
<tr>
<td>D6</td>
<td>0.005 10</td>
<td>0.0007 10</td>
<td>0.0075 10</td>
</tr>
<tr>
<td>P3-1</td>
<td>0.0021 15</td>
<td><strong>&lt;.0001</strong> 15</td>
<td><strong>&lt;.0001</strong> 15</td>
</tr>
</tbody>
</table>

Evidence-based approach to promote Work Safe Behavior Program
<table>
<thead>
<tr>
<th>Assessment</th>
<th>Baseline — 2 Wks</th>
<th>Baseline — 10 Wks</th>
<th>2 wks—10 Wks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P-value</td>
<td>N</td>
<td>P-value</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>&lt;.0001</td>
<td>125</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>E1</td>
<td>&lt;.0001</td>
<td>10</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>F1</td>
<td>0.1114</td>
<td>10</td>
<td>0.0479</td>
</tr>
<tr>
<td>E2</td>
<td>0.0033</td>
<td>10</td>
<td>0.0033</td>
</tr>
<tr>
<td>F2</td>
<td>0.0015</td>
<td>10</td>
<td>&lt;.0001</td>
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<tr>
<td>E3</td>
<td>0.0006</td>
<td>10</td>
<td>0.0001</td>
</tr>
<tr>
<td>F3</td>
<td>1</td>
<td>10</td>
<td>N/A</td>
</tr>
<tr>
<td>ELG1/CIC</td>
<td>&lt;0.0001</td>
<td>10</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>C3</td>
<td>&lt;0.0001</td>
<td>10</td>
<td>&lt;.0001</td>
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<tr>
<td>D3</td>
<td>0.0211</td>
<td>10</td>
<td>0.0006</td>
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<tr>
<td>C6</td>
<td>0.0152</td>
<td>10</td>
<td>0.005</td>
</tr>
<tr>
<td>D6</td>
<td>0.0011</td>
<td>10</td>
<td>0.0019</td>
</tr>
<tr>
<td>P3-1</td>
<td>&lt;0.0001</td>
<td>15</td>
<td>&lt;.0001</td>
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</tbody>
</table>

Evidence-based approach to promote Work Safe Behavior Program.
## FINDINGS

### PEARSON CORRELATION COEFFICIENT

#### (QUIZ & ASSESSMENT)

<table>
<thead>
<tr>
<th></th>
<th>Baseline — 2 Wks</th>
<th>Baseline — 10 Wks</th>
<th>2 Wks—10 Wks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P-value</td>
<td>N</td>
<td>P-value</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td><strong>0.2468</strong></td>
<td><strong>102</strong></td>
<td><strong>0.04661</strong></td>
</tr>
<tr>
<td>E1</td>
<td>0.6563</td>
<td>7</td>
<td>-0.03492</td>
</tr>
<tr>
<td>F1</td>
<td>0.60541</td>
<td>10</td>
<td>0.05025</td>
</tr>
<tr>
<td>E2</td>
<td>0.61835</td>
<td>7</td>
<td>N/A</td>
</tr>
<tr>
<td>F2</td>
<td>0</td>
<td>7</td>
<td>-0.76376</td>
</tr>
<tr>
<td>E3</td>
<td>0.40542</td>
<td>8</td>
<td>-0.74536</td>
</tr>
<tr>
<td>F3</td>
<td>N/A</td>
<td>8</td>
<td>0.51187</td>
</tr>
<tr>
<td>ELG1/CIC</td>
<td>-0.13776</td>
<td>6</td>
<td>-0.84174</td>
</tr>
<tr>
<td>C3</td>
<td>N/A</td>
<td>8</td>
<td>0.16054</td>
</tr>
<tr>
<td>D3</td>
<td>-0.18638</td>
<td>8</td>
<td>0.20754</td>
</tr>
<tr>
<td>C6</td>
<td>-0.22771</td>
<td>8</td>
<td>0.59222</td>
</tr>
<tr>
<td>D6</td>
<td>-0.16751</td>
<td>10</td>
<td>N/A</td>
</tr>
<tr>
<td>P3-1</td>
<td>0.10047</td>
<td>15</td>
<td>-0.22571</td>
</tr>
</tbody>
</table>

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RESULT (1)

1. The finding showed an overall improvement in acquired knowledge and skill at 2 weeks & 10 weeks after the training (P<0.05).

2. Pearson Correlation Coefficients (r) were used to determine the relationship between quiz & assessment but it only showed a relatively small correlation at all.
Graph 1
Total IOD Rate (Per 100 FTE) in 2010, 2011 & 2012

WSB Program launched this

Average IOD Rate in 2012 (= 5.98)

<table>
<thead>
<tr>
<th>Year</th>
<th>M&amp;G</th>
<th>PMH</th>
<th>HA Gp1</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>8.7</td>
<td>5.23</td>
<td>5.6</td>
</tr>
<tr>
<td>2011</td>
<td>7.7</td>
<td>5.04</td>
<td>6.0</td>
</tr>
<tr>
<td>2012</td>
<td>7.3</td>
<td>6.13</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Total IOD case no increased in PMH & HA Gp 1 as compared with the declined rate in M&G Dept in 2011/2012

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Graph 2
Total IOD Rate related to MHO (Per 100 FTE) in 2010, 2011 & 2012

<table>
<thead>
<tr>
<th>Year</th>
<th>M&amp;G</th>
<th>HA Gp1</th>
<th>Average MHO IOD Rate (= 1.21)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>5.14</td>
<td>1.53</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>2.8</td>
<td>1.66</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>2.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No of **IOD Cases related to MHO** increased in HA versus an decreasing trend in M&G Department

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The **Total IOD SL Rate** decreased in PMH & HA versus an increasing trend in M&G Dept.

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No of **IOD SL Rate related to MHO** were both decreased in HA & M&G Dept

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RESULT (2) COMPARISON IOD & SL RATE RELATED TO MHO BY RANK IN M&G DEPT

Graph 5
IOD Rate related to MHO by Rank in M&G Dept from 2010 to 2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Supporting Staffs</th>
<th>Nursing Staffs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>9.09</td>
<td>3.23</td>
</tr>
<tr>
<td>2011</td>
<td>6.36</td>
<td>1.61</td>
</tr>
<tr>
<td>2012</td>
<td>6.36</td>
<td>1.61</td>
</tr>
</tbody>
</table>

Graph 6
Sick Leave Rate related to MHO by Rank in M&G Dept from 2010 to 2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Supporting Staffs</th>
<th>Nursing Staffs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>110</td>
<td>17.1</td>
</tr>
<tr>
<td>2011</td>
<td>49.1</td>
<td>12.6</td>
</tr>
<tr>
<td>2012</td>
<td>39.1</td>
<td>9.35</td>
</tr>
</tbody>
</table>

No. of IOD Rate & Sick Leave Rate related to MHO by Rank declined with a steady trend in M&G Department.

Evidence-based approach to promote Work Safe Behavior Program.
RESULT (2.1) COMPARISON IOD & SL RATE IN M&G DEPT

No. of IOD Rate are both declined in total IOD related to MHO & total IOD
Sick Leave Rate dropped in SL Rate related to MHO but increased in total IOD
⇒ Number of Sick Leave Rate related to non-MHO cases raised in M&G Dept

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CONCLUSION (1)

1. The Work Safe Program was effective in improving staff’s knowledge and skill with the promotion of safe act.

2. However, there is not much relationship between quiz and skill assessment as the overall Pearson Correlation Coefficient ranged from 0.25 to 0.33 only, reflected the higher score in quiz might not have a better performance in skill and vice versa.

3. Over 90% of MHOTTTTs reflected that the program was effective.
3. Over 70% of Supporting Staffs could perform MHO tasks smoothly after understanding patient’s self ability.

4. Over 80% Supporting Staffs responded that the program was effective; reflected that the importance of stretching exercise was beneficial to them; less strength used comparatively after handling transferring aids properly; understood that concept of work safe was important & being confident in performing MHO task than before.
RECOMMENDATIONS

1. Review IOD cases related to MHO in PMH for generating a complete picture for comparison purpose.

2. Explore the high sick leave rate related to non-MHO case in M&G Dept.

3. Further refine the WSB program in the aspect of the ergonomic issue by studying the part of body involved / nature of the injury during the IOD case study.
REFERENCES


Evidence-based approach to promote Work Safe Behavior Program
The End
Evidence-based approach to promote Work Safe Behavior Program