Safe Community is Cost Effectiveness

Kwai Tsing Experience

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Summary

• Health care cost of injuries is tremendous
  – HK$ 4,389 million for years production life loss
  – HK$ 2,070 million direct injury cost per year
  – ? Indirect cost – usually > 3x of direct medical cost

• Injury can be prevented

• Kwai Tsing Safe Community has achieved a reduction of 30% of injuries in 5 years through strategically planned projects with collaborative efforts among all sectors in the community with a cost benefit ratio of >> 5

• New strategy basing on a GIS injury surveillance will be described
Injury death rates by sex and age group, 2006 (HK)

Note: * Rate per 100,000 population of respective sex and age group.
Sources: Department of Health; Census and Statistics Department.
Estimated production life loss from injury mortalities 2006

• No. of mortalities below the age of 65: 1,274\(\psi\)

• Total loss of working period: 31,230 years

• Average production loss: 24.5 years

• Mean wage as at Sept 2007: HK$ 11,712/month\(\sigma\) (manufacturing)

• Estimated production loss: HK$11,712/month * 12months * 31,230

\[\text{Estimated production loss: HK$ 4,389 million}\]

\(\sigma\) Median Monthly Income from Main Employment, census and statistic department
\(\psi\) Registered Injured Mortalities
Annual case load of Injury type vs District

Source: CDARS A&E attendance analysis
<table>
<thead>
<tr>
<th>Cluster</th>
<th>No. of ED attendance</th>
<th>Hospital bed days</th>
<th>ICU bed days</th>
</tr>
</thead>
<tbody>
<tr>
<td>HKE</td>
<td>0</td>
<td>2000</td>
<td>8000</td>
</tr>
<tr>
<td>HKW</td>
<td>20000</td>
<td>60000</td>
<td>10000</td>
</tr>
<tr>
<td>KC</td>
<td>40000</td>
<td>80000</td>
<td>12000</td>
</tr>
<tr>
<td>KE</td>
<td>60000</td>
<td>100000</td>
<td>140000</td>
</tr>
<tr>
<td>KW</td>
<td>80000</td>
<td>120000</td>
<td></td>
</tr>
<tr>
<td>NTE</td>
<td>100000</td>
<td>140000</td>
<td></td>
</tr>
<tr>
<td>NTW</td>
<td>120000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: CDARS In-patient cohort analysis
## Cost impact on ED attendance, hospital bed days and ICU bed days

<table>
<thead>
<tr>
<th>Year</th>
<th>ED Attendance cost (HK$ Million)</th>
<th>Hospital bed day cost (HK$ Million)</th>
<th>ICU bed day Cost (HK$ Million)</th>
<th>Total cost (HK$ Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>297.15</td>
<td>1,912.73</td>
<td>103.92</td>
<td>2,313.80</td>
</tr>
<tr>
<td>2001</td>
<td>303.77</td>
<td>1,932.21</td>
<td>102.36</td>
<td>2,338.34</td>
</tr>
<tr>
<td>2002</td>
<td>289.97</td>
<td>1,901.92</td>
<td>101.19</td>
<td>2,293.08</td>
</tr>
<tr>
<td>2003</td>
<td>229.17</td>
<td>1,606.67</td>
<td>86.97</td>
<td>1,922.81</td>
</tr>
<tr>
<td>2004</td>
<td>241.89</td>
<td>1,654.10</td>
<td>93.85</td>
<td>1,989.84</td>
</tr>
<tr>
<td>2005</td>
<td>229.89</td>
<td>1,633.85</td>
<td>79.65</td>
<td>1,943.39</td>
</tr>
<tr>
<td>2006</td>
<td>232.61</td>
<td>1,638.36</td>
<td>71.22</td>
<td>1,942.19</td>
</tr>
<tr>
<td>2007</td>
<td>233.84</td>
<td>1,517.70</td>
<td>67.86</td>
<td>1,819.40</td>
</tr>
<tr>
<td>Average</td>
<td>257.29</td>
<td>1,724.69</td>
<td>88.38</td>
<td>2,070.36</td>
</tr>
</tbody>
</table>

**HK$ 2,070 million direct injury cost per year**

Source: CDARS A&E attendance analysis

Inpatient cohort analysis

HA statistic report 2000-2006
Trend analysis of injury related hospital cost

2000-2007
## HK $5.4 million per 1,000 injury related ED attendance

<table>
<thead>
<tr>
<th>Resource consumption</th>
<th>Cost estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000 ED attendance</td>
<td>HK$ 700,000.00</td>
</tr>
<tr>
<td>130 hospital admissions</td>
<td>$\text{---------}$</td>
</tr>
<tr>
<td>38 related Emergency operations</td>
<td>$\text{---------}$</td>
</tr>
<tr>
<td>1,427 hospital bed days (average LOS :10.98)</td>
<td>HK$ 4,709,100.00</td>
</tr>
<tr>
<td>17 ICU bed days (0.13 day / admission)</td>
<td>HK$ 236,300.00</td>
</tr>
<tr>
<td><strong>Total cost</strong></td>
<td><strong>HK$ 5,409,100.00</strong></td>
</tr>
</tbody>
</table>
## Predicted cost reduction by % of injury related ED attendance

<table>
<thead>
<tr>
<th>Reduced no. of ED attendance</th>
<th>1%</th>
<th>5%</th>
<th>10%</th>
<th>15%</th>
<th>20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced no. of ED attendance</td>
<td>3676</td>
<td>18380</td>
<td>36760</td>
<td>55140</td>
<td>73520</td>
</tr>
<tr>
<td>Reduced no. of Hospital admissions</td>
<td>471</td>
<td>2355</td>
<td>4710</td>
<td>7065</td>
<td>9420</td>
</tr>
<tr>
<td>Reduced no. of emergency operations</td>
<td>136</td>
<td>680</td>
<td>1360</td>
<td>2040</td>
<td>2720</td>
</tr>
<tr>
<td>Reduced no. of Hospital Bed day consumptions</td>
<td>5115</td>
<td>25575</td>
<td>51150</td>
<td>76725</td>
<td>102300</td>
</tr>
<tr>
<td>Reduced no. of ICU bed day consumptions</td>
<td>61</td>
<td>305</td>
<td>610</td>
<td>915</td>
<td>1220</td>
</tr>
<tr>
<td>Injury cost saving (HK$ million)</td>
<td>20.3</td>
<td>101.5</td>
<td>203.0</td>
<td>304.5</td>
<td>406.0</td>
</tr>
</tbody>
</table>
Injury ≠ Accident

Injury could be prevented
Kwai Tsing Experience
Safe Communities
A “Safe Community” can be a: Municipality; a County; a City or a District of a City working with safety promotion, Injury-, Violence-, Suicide- and Natural Disaster prevention, covering all age groups, gender and areas and is a part of an international network of accredited programmes.
Coordinate resources in Kwai Tsing Community to conduct comprehensive and systematic community diagnosis, then identify, develop and implement promotional and educational improvement program to reduce injuries and promote health in the community.
Safe Communities have:

- An **infrastructure** based on partnership and collaborations, governed by a cross-sectional group that is responsible for safety promotion in their community;

- Long-term, **sustainable programs** covering both genders and all ages, environments, and situations;

- Programs that **target high-risk groups** and environments, and programs that promote safety for vulnerable groups;

- Programs that **document** the frequency and causes of injuries;

- **Evaluation** measures to assess their programs, processes and the effects of change;

- **Ongoing participation** in national and international Safe Communities networks.
Safety for ALL - 2000

<table>
<thead>
<tr>
<th>Child</th>
<th>Youth</th>
<th>Adult</th>
<th>Elderly</th>
<th>Home</th>
<th>Road</th>
<th>Crime</th>
<th>Fire</th>
</tr>
</thead>
</table>

Safe & Healthy 2002

- Estate 2002
- Streets 2006
- School 2003
- Workplace 2004
- Old age home 2005
- Playground Sports 2007

Community promotion – Nutrition, Exercise, Infection, Fall, Mental health, Emergency response
Kwai Tsing Safe Community

- Kwai Tsing has achieved a reduction of 30% of injuries in 5 years through strategically planned projects with collaborative efforts among all sectors in the community.
Estimation of cost benefit ratio

Assume the injury prevention contribute to **20% of the injury cost reduction**

The Cost-Benefit Ratio would be equal to

HK$ 181,000,000.00 (injury cost saving) * 20% / HK$ 7,438,179.5 (funding input for 5 yrs)

The gross estimated cost benefit ratio would be **4.87**

(discounted present values are not processed)

**Note**
1) Setup the safety promotion and injury prevention center (HK$ 200,000.00)
2) New GIS injury surveillance system (HK$800, 000.00)
Safety for ALL - 2000

| Child | Youth | Adult | Elderly | Home | Road | Crime | Fire |

Injury Database

- AEIS – Accident & Emergency Information System
- CDARS – Hospital admissions
- Child abuse registry of SWD
- Traffic accident database – Police
- Crime rate – Police
- Fire outbreaks – Fire Services Department
- Ad hoc surveys
Step forward - 1:

Establish NEW injury surveillance system based on ICECI at AED

Supported by OSHC 2005

- residential address
- place
- activity
- intent
- mechanism
- nature and type of injury
- severity
- alcohol
Injury surveillance

1. Injury surveillance is a crucial first step for reducing the burden of injury worldwide

2. Quantify the health burden of injury

3. Quantify the financial burden of injury

4. Identify possible risk factors

5. Stimulate epidemiologic research

6. Evaluate the effectiveness of injury prevention programs
System Development

1. Local classification of injury
2. Workflow analysis
3. User interface design
4. Prototype development
5. System evaluation
User interface design

- Minimal stages for data entry
- Fit the actual situation of ED triage process
- Simple and efficiency

Time needed: 12 seconds
Entry point at Triage Station
Entry point at Nurse Station
Entry point at Nurse Station
Reporting-1

Standard reporting – preset format

Reporting by ICD injury coding

Reporting by AIS scale

Injury charts
Injury maps

Scenario based search
1. Highway/Street (30.86%)
2. Home (21.00%)
3. Factory/Workshop (12.05%)
4. Office/company (5.64%)
5. School (4.15%)
6. Playground (4.15%)
7. Construction site (4.10%)
8. Old aged home (3.10%)
9. Others (2.72%)
10. Container port/Wharf (2.00%)

Number of Injuries by Place of Occurrence & Sex between 01-01-2006 and 31-12-2006 in All

- Male
- Female

- Highway/Street
- Home
- Factory/Workshop
- Office/company
- School
- Playground
- Construction site
- Old aged home
- Others
- Container port/Wharf
- Vehicle
- Restaurant kitchen
- Hospital
- Shop
- Restaurant eating area
- Unknown
- Carades
- Warehouse
- Ship
- Store

Number of Injury

0 400 800 1200 1600 2000
Top leading activities when injured were:

1. Traveling (42.55%)
2. Work (38.65%)
3. Sport (9.37%)
4. Unknown (5.51%)
5. Others (2.10%)
6. Education (1.82%)
Top ten leading types of injury

1. Cut/open wound (36.78%)
2. Bruise (28.19%)
3. Sprain/strain (17.48%)
4. Fracture (5.05%)
5. Concussion (4.71%)
6. Unknown (3.50%)
7. Burn (2.51%)
8. Dislocation (0.69%)
9. Bite (0.64%)
10. Others (0.26%)
Age distribution of injury type
Number of Injury by Region

Number of Injury by Region between 01-01-2006 and 31-12-2006 in All

<table>
<thead>
<tr>
<th>Body Region</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>head</td>
<td>1750</td>
</tr>
<tr>
<td>face</td>
<td>1152</td>
</tr>
<tr>
<td>neck</td>
<td>108</td>
</tr>
<tr>
<td>thorax</td>
<td>365</td>
</tr>
<tr>
<td>abdomen &amp; pelvic content</td>
<td>99</td>
</tr>
<tr>
<td>spine</td>
<td>882</td>
</tr>
<tr>
<td>upper extremities</td>
<td>959</td>
</tr>
<tr>
<td>lower extremities</td>
<td>1143</td>
</tr>
<tr>
<td>skin</td>
<td>56727</td>
</tr>
</tbody>
</table>

Body Region by Activity

<table>
<thead>
<tr>
<th>Activity when Injured</th>
<th>head</th>
<th>face</th>
<th>neck</th>
<th>thorax</th>
<th>abdomen &amp; pelvic content</th>
<th>spine</th>
<th>upper extremities</th>
<th>lower extremities</th>
<th>skin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Others</td>
<td>2.63%</td>
<td>2.08%</td>
<td>1.61%</td>
<td>2.74%</td>
<td>3.03%</td>
<td>1.04%</td>
<td>0.93%</td>
<td>1.31%</td>
<td>1.28%</td>
</tr>
<tr>
<td>Unknown</td>
<td>6.97%</td>
<td>4.77%</td>
<td>6.99%</td>
<td>4.93%</td>
<td>5.05%</td>
<td>2.82%</td>
<td>3.65%</td>
<td>3.32%</td>
<td>3.13%</td>
</tr>
<tr>
<td>Work</td>
<td>24.34%</td>
<td>23.94%</td>
<td>31.18%</td>
<td>30.95%</td>
<td>26.52%</td>
<td>54.81%</td>
<td>34.10%</td>
<td>30.01%</td>
<td>35.00%</td>
</tr>
<tr>
<td>Education</td>
<td>5.99%</td>
<td>4.52%</td>
<td>1.06%</td>
<td>0.27%</td>
<td>5.03%</td>
<td>0.99%</td>
<td>2.19%</td>
<td>3.98%</td>
<td>1.99%</td>
</tr>
<tr>
<td>Sport</td>
<td>7.96%</td>
<td>11.45%</td>
<td>5.91%</td>
<td>5.21%</td>
<td>5.00%</td>
<td>4.11%</td>
<td>18.02%</td>
<td>20.32%</td>
<td>4.07%</td>
</tr>
<tr>
<td>Hunting</td>
<td>53.71%</td>
<td>51.00%</td>
<td>63.99%</td>
<td>54.52%</td>
<td>57.10%</td>
<td>56.36%</td>
<td>34.50%</td>
<td>38.06%</td>
<td>25.31%</td>
</tr>
</tbody>
</table>
Injury Chart – Fall injury

Fall related injury in Kwai Tsing regions by age group and sex between 01-01-2006 and 31-12-2006

- Male
- Female

 Communities:
- Kwai Hing
- Kwai Shing East Estate
- Upper Tai Wo Hou
- Lower Tai Wo Hau
- Kwai Chung Estate
- Shek Yam
- On Yam
- Shek Lei Extension
- Shek Lei
- Tai Pak Tin
- Kwai Fong
- Lai Yu
- Lai Wah
- Cho Yu
- Hing Fong
- Lai King
- Kwai Shing West Estate
- On Ho
- Wai Ying
- Tsing Yi Estate
- Greenfield
- Cheung Ching
- Cheung Honq
- Shing Honq
- Tsing Yi South
- Cheung Hanq
- Ching Fat
- Cheung On

Number of Injury

0 20 40 60 80 100
Injury Chart – Interpersonal Violence
## Risk factors identified by incident

<table>
<thead>
<tr>
<th>Place of occurrence</th>
<th>Highway/ Street 17.4%</th>
<th>Home 11.8%</th>
<th>Factory/ Workshop 6.7%</th>
<th>Office/ Company 3.18%</th>
<th>Construction site 2.31%</th>
<th>Playgroun d 2.34%</th>
<th>School 2.34%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
<td>Traveling 24%</td>
<td>Work 21.8*</td>
<td>Sport 5.3%</td>
<td>Education 1.02%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cause of injury</td>
<td>Other blunt force 20.5%</td>
<td>Fall 21.8%</td>
<td>Stab/Cut 6.02%</td>
<td>Traffic injury 3.69%</td>
<td>Fire/Heat 1.1%</td>
<td>Lifting 0.75%</td>
<td></td>
</tr>
<tr>
<td>Age groups</td>
<td>&gt;65 15.24%</td>
<td>25-34 15.02%</td>
<td>45-54 16.97%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injury by Site</td>
<td>Skin 1.17%</td>
<td>Head 10.96%</td>
<td>Lower limbs 14.76%</td>
<td>Face 5.76%</td>
<td>Upper limbs 14.56%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ED cost for injury

HK$0
HK$200,000
HK$400,000
HK$600,000
HK$800,000
HK$1,000,000
HK$1,200,000
Hospital Length of Stay Cost

HK$0
HK$2,000,000
HK$4,000,000
HK$6,000,000
HK$8,000,000
HK$10,000,000
HK$12,000,000

Cost of LOS

Kwai Hing
Kwai Shing East Est
Upper Tai Wo Hau
Lower Tai Wo Hau
Kwai Chung Est
Shen Yuen
On Yuen
Shek Le Extension
Shek Lei
Shek Lei Extension
Tai Pak Tin
Kwai Fong
Wah Fong
Cho Yu
Lai Yu
Hing Fong
Lai King
Kwai Shing West Est
Nga On
Wai Hoi
Tsing Yi Est
Greenfield
Cheung Ching
Cheung Hong
Cheung Hang
Tsing Yi South
Fat Tai
Cheung On
### Fall Prevalence – Kwai Tsing

- **Total injury attendance**: 30,000
- **Total Fall cases**: 2217 (21% of all captured cases)
- **Male : Female**: (4.8 : 5.2)
- **Overall Incident rate for fall**: 4.2 in 1000 people per year
- **20% required admission**
- **Top 3 areas for fall**:  
  1. Lai Yiu  
  2. Tai Pak Tin  
  3. Kwai Shing West Est.

<table>
<thead>
<tr>
<th>ZONE</th>
<th>No. of Fall</th>
<th>% of Total Fall</th>
<th>Incident Rate per 1000 people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kwai Ping</td>
<td>72</td>
<td>3.25%</td>
<td>4.2</td>
</tr>
<tr>
<td>Kwai Shing East Est</td>
<td>98</td>
<td>4.42%</td>
<td>5</td>
</tr>
<tr>
<td>Upper Tai Wo Hau</td>
<td>13</td>
<td>0.59%</td>
<td>0.8</td>
</tr>
<tr>
<td>Lower Tai Wo Hau</td>
<td>12</td>
<td>0.54%</td>
<td>0.5</td>
</tr>
<tr>
<td>Kwai Ching Est</td>
<td>97</td>
<td>4.38%</td>
<td>5.4</td>
</tr>
<tr>
<td>Shek Yum</td>
<td>96</td>
<td>4.33%</td>
<td>4.2</td>
</tr>
<tr>
<td>On Yam</td>
<td>78</td>
<td>3.52%</td>
<td>3.6</td>
</tr>
<tr>
<td>Shek Lei Extension</td>
<td>91</td>
<td>4.10%</td>
<td>4.3</td>
</tr>
<tr>
<td>Shek Lei</td>
<td>66</td>
<td>2.98%</td>
<td>3.3</td>
</tr>
<tr>
<td>Tai Pak Tin</td>
<td>129</td>
<td>5.55%</td>
<td>7.7</td>
</tr>
<tr>
<td>Kowloon City</td>
<td>159</td>
<td>6.27%</td>
<td>6.9</td>
</tr>
<tr>
<td>Lai Wah</td>
<td>73</td>
<td>3.29%</td>
<td>4.9</td>
</tr>
<tr>
<td>Cho Yiu</td>
<td>102</td>
<td>4.60%</td>
<td>5.4</td>
</tr>
<tr>
<td>Lai Yiu</td>
<td>144</td>
<td>6.00%</td>
<td>9.7</td>
</tr>
<tr>
<td>Hing Fong</td>
<td>64</td>
<td>2.89%</td>
<td>3.9</td>
</tr>
<tr>
<td>Lai King</td>
<td>104</td>
<td>4.69%</td>
<td>5.3</td>
</tr>
<tr>
<td>Kowloon City West</td>
<td>119</td>
<td>5.37%</td>
<td>5.5</td>
</tr>
<tr>
<td>On Ho</td>
<td>69</td>
<td>3.11%</td>
<td>3.4</td>
</tr>
<tr>
<td>Wai Ying</td>
<td>47</td>
<td>2.12%</td>
<td>3</td>
</tr>
<tr>
<td>Tsing Yi Est</td>
<td>51</td>
<td>2.30%</td>
<td>2.5</td>
</tr>
<tr>
<td>Greenfield</td>
<td>45</td>
<td>2.03%</td>
<td>2.6</td>
</tr>
<tr>
<td>Cheung Ching</td>
<td>91</td>
<td>4.10%</td>
<td>4.4</td>
</tr>
<tr>
<td>Cheung Hoag</td>
<td>63</td>
<td>2.84%</td>
<td>3.5</td>
</tr>
<tr>
<td>Shing Hong</td>
<td>71</td>
<td>3.20%</td>
<td>3.8</td>
</tr>
<tr>
<td>Tsing Yi South</td>
<td>116</td>
<td>5.23%</td>
<td>6.6</td>
</tr>
<tr>
<td>Cheung Hang</td>
<td>55</td>
<td>2.48%</td>
<td>2.7</td>
</tr>
<tr>
<td>Cheung Fat</td>
<td>72</td>
<td>3.26%</td>
<td>3.8</td>
</tr>
<tr>
<td>Cheung On</td>
<td>46</td>
<td>2.07%</td>
<td>2.4</td>
</tr>
</tbody>
</table>
Injuries in Tai Pak Tin

- **Number of samples**: 404
- **Gender**: M:F = 201 : 203
- **Age**: Range 3 yrs old to 102 yrs
  - Standard deviation: 28.53 yrs
  - Mean age: 59.81 yrs

- **Medical history** (52%, n = 210)
  - CVA = 60
  - Dementia = 25
  - DM = 24
  - HT = 19
  - Psychiatric = 8
  - Asthma = 8

Majority of the victims are elderly, half of them with pre-existing medical problem like CVA and Dementia
Falls in Tai Pak Tin (n=160)

No. of repeated episodes (n=99, 25%)
42 cases with repeated injury (38 cases lived in OAH)

26 cases with repeated injury for 2 x
14 cases with repeated injury for 3 x
2 cases with repeated injury for 4 x
1 case with repeated injury for 5 x

30 cases with medical history (neuro = 9, CVS = 6, CVA = 5)

No. of live alone = 3

There were 42 cases identified with repeated injuries, they responsible for 99 episode, 25% of all the injury cases. Majority of the event occurred in OAH
# Environmental analysis – RCHE

<table>
<thead>
<tr>
<th>OAH</th>
<th>No. of case</th>
<th>Fell</th>
<th>Fell in toilet</th>
<th>Fell from Bed</th>
<th>Fell from Chair</th>
<th>Fell from wheelchair</th>
<th>Other Blunt force</th>
<th>Street</th>
<th>Restaurant</th>
<th>Cut</th>
<th>Collapsed</th>
<th>Unknown</th>
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</thead>
<tbody>
<tr>
<td>OAH1</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
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<td>OAH2</td>
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<tr>
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<td>0</td>
<td>2</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Total</td>
<td>170</td>
<td>65</td>
<td>27</td>
<td>33</td>
<td>9</td>
<td>4</td>
<td>11</td>
<td>6</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>8</td>
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</tbody>
</table>
Identified problems

• Elderly fall injury in OAH \( (n=170) \)

• Repeat elderly fall cases \( (n=43, \text{ 99 episode}) \)

• Special measure/management to the toilets for elderly \( (n=30, \text{ 27 in OAH}) \)

• Outdoor injury : \( n=35 \) (exact location could not be identified at the moment)

• High risk group with special medical history like CVA, HT and dementia
Pilot of injury reporting and prevention in RCHE

- Task group formation with domain knowledge input and support from government agency
- To design and implement on-site assessment
- To design targeted interventions with reference to aggregated data from ED surveillance and on-site assessment
- To implement the planned action with agreed time frame
- Two months counted from the start of intervention (two months intervals)

Collaboration with SWD for community base injury prevention program
Development of 2nd version injury surveillance

A New System with Geographical Information System

GIS

supported by KT DC

In progress
New interface design

Multi-centered
Injury surveillance system
GIS for injury event
2D body map for ICD 10 injury coding
Confirmation
Press the Save button to save the data.

Place: Highway/Street
Activity: Traveling
Intent: Intentional (A/A)
- For (A/A) Context: Gang activity
- For (A/A) Relationship: Classmates/schoolmates
Mechanism: Trap
Alcohol: Yes
Drug: Yes

<table>
<thead>
<tr>
<th>Nature of Injury</th>
<th>Injury by Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>D/S/S</td>
<td>Sprain and strain of other and unspecified parts of hand</td>
</tr>
<tr>
<td>Fracture</td>
<td>Fracture of other and unspecified parts of wrist and hand</td>
</tr>
<tr>
<td></td>
<td>Multiple fractures of metacarpal bones</td>
</tr>
</tbody>
</table>

Save Cancel
Correlation studies. digitalized geo-coding of injury events

Spatial analysis by maps tools.

Clustering and evaluate the relationship to the location of polygons/facilities.

Inferential statistics will be employed to identify the identification of clusters of excess or clustered of deficit given by road casualty weighted road density exposure.
Hot zones for 6 crashes or more in Kwai Tsing District in 2006
26 Hot zones for 8 crashes or more in Kwai Tsing District in 2006
Step forward - 2:

Target injury prevention program
Step forward - 3:

Establish

Injury prevention and Safety Promotion Centre
Injury Prevention and Safety Promotion center

- Established in Dec 2007
- Located in the CHRC, Princess Margaret Hospital
- Injury surveillance and programming
- Coordinate and manage various Prevention programs
- Research and Statistics
- Report distribution
- Liaison with government agencies
Proposed strategic model of targeted injury prevention and control

- Injury surveillance
  - Data analysis
    - Fall injury
    - Child injury
    - Elderly injury
    - Other injury
      - Safety specialist input
        - Government Agencies/Agency
          - Prevention program
            - Prevention program
              - Prevention program
                - Prevention program
Collaboration mechanism of injury prevention and control (Kwai Tsing) – illustrated by objected oriented model
Conclusion

• Injury is a serious health problem; because of its impact on health; including premature death, disabilities and the burden on our health care system
  
  **CDC's Injury Center**

• **Safe community** is a proved model for injury prevention
  

• The first core task of health sector recommended by WHO would be a surveillance system,
  
  *Regional Framework for Action on Injury and Violence Prevention 2006-2010 (by WHO, Western Pacific Regional Office)*

• **Injury prevention and safety promotion center help prevention and control of injuries.**
Safe Community is Cost Effectiveness & High Cost Benefit Ratio

Thank you