Chronic kidney Disease Management with Chronic Care Model at Primary Care in NST, Thailand.

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Chronic kidney disease (CKD) is a major public health problem imposing a substantial burden on health-care systems worldwide. The majority of patients with chronic kidney disease (CKD) stages 3–4 in Thailand are managed by nurse practitioner in primary care. Early intervention can reduce the disease progression and decrease mortality. The effects of CKD management program are described by using a chronic care model.
• Diabetes and Hypertension Patients are high risk group for Chronic kidney disease (CKD)
• Banmaidang Health Promoting Hospital Nakhon si Thammarat, Thailand (study area)
  -DM = 299 persons; have complication with CKD ≥ stage3 = 91 persons (30.43 %)
  -HT = 580 persons; have complication with CKD ≥ stage3 = 72 persons (12.41 %)
  -End stage with CAPD = 8 persons.
Objective:
To study on effect of the chronic kidney disease management program.
The chronic kidney disease management Program

**Situation analysis**

- DM = 299; CKD ≥ stage3 = 91 (30.43%)
- HT = 580; CKD ≥ stage3 = 72 (12.41%)

Banmaidang Health Promoting Hospital Nakhon Si Thammarat, Thailand (study area)

End stage with Continuous ambulatory peritoneal dialysis = 8

**Action**

Modification multidisciplinary care teams

Program integrated all of the six areas of chronic care model

**Evaluation**

1. clinical targets
   - Change in renal function
   - Serum Creatinine
   - Blood pressure
2. The proportion of patients achieving for score of Self-Care Behavior

Supportive by community policy

Action research Program improvement collaborative intervention based on Chronic Care Model (August 2016 - January)
Population 150 with CKD stage 3 or 4 were enrolled within the chronic kidney disease management program. An intervention had to integrate all of the six areas of chronic care model:

1) Self-management support  
2) Decision support  
3) Delivery system design  
4) Clinical information systems  
5) Health care organization  
6) Community resources
Methology

• Analyzed the performance against clinical targets looking at a change in renal function, Blood pressure control and the proportion of patients achieving for score of Self-Care behavior prior to and following joining the program.
Model of Developing

1. Screening and separate group for CKD. Divide the care group according to the Clinical practice guidelines.
2. Develop the potential of multidisciplinary care teams in primary care and health volunteers.
3. Screening for complications from DM + HT to know the situation.
4. Reverse chronic kidney disease information at each stage to the community.
5. Provide knowledge about self care management chronic kidney disease to all patients before detecting renal complications.
6. Organize training workshops to promote self-care for delayed chronic kidney disease
7. Promote local wisdom with herbs, reduce pain, compress to reduce the use of NSAIDs.
8. Information to help decision-making To change behavior.
— Local food in the community for cooking And adaptation of nutrition knowledge models in line with the prevention of chronic kidney disease in proactive community services.

10. Work collaboratively on patient care with host communities and other organizations.

Participate in the prevention and care of chronic kidney disease patients.

- Home visits in issue; medication, dietary and Risk Behavior in CKD Patients on stage 4-5 before dialysis

- Focus awareness on the importance of self-care.
Self-management support on medicine intake
Self-management support on food and fluid intake for CKD
Community policy focus on promoting exercise.
Community policy focus on promoting reduce Sodium intake

Simple Ways to Reduce Salt intake in Your Diet

TIP 3: Choose plain rice instead of flavoured rice

TIP 4: Avoid dipping sauces or adding extra gravy to meals

TIP 5: Leave behind soup stock and gravy

TIP 6: Read food labels: Choose ‘reduced salt’ or ‘low salt’ or ‘no added salt’ products

*Without comments, this illustration is incomplete.
Community policy focus on Alcohol and Tobacco Control
Education self monitoring in stage of CKD among DM and HT patients
Home Visit by health volunteer who were trained
Using Thai traditional herb and avoid NSAIDs in CKD patients who have Osteoarthritis
# Health education for reduce the disease progression

<table>
<thead>
<tr>
<th>NO.</th>
<th>Issue</th>
<th>Target</th>
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<tbody>
<tr>
<td>1</td>
<td>Blood sugar control (FBS)</td>
<td>80-130 mg/dl.</td>
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<tr>
<td>2</td>
<td>Haemoglobin A1C</td>
<td>&lt; 7%</td>
</tr>
<tr>
<td>3</td>
<td>low-density lipoprotein (LDL)</td>
<td>&lt; 100 mg/dl</td>
</tr>
<tr>
<td>4</td>
<td>Blood Pressure</td>
<td>≤130/80 mmHg</td>
</tr>
<tr>
<td>5</td>
<td>Sodium intake</td>
<td>&lt; 2,000 mg (1 teaspoon of salt)</td>
</tr>
<tr>
<td>6</td>
<td>NSAIDs, Herb, Steroids</td>
<td>Stop/Avoid</td>
</tr>
<tr>
<td>5</td>
<td>waist circumference F/M (Asian)</td>
<td>&lt; 80 CM., 90 CM.</td>
</tr>
<tr>
<td>6</td>
<td>Exercise</td>
<td>At least 30 minutes everyday</td>
</tr>
<tr>
<td>7</td>
<td>Smoke/Alcohol abuse</td>
<td>Stop / Avoid</td>
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</table>
Table 1. Average patient’s knowledge about self management behavior for reduce the disease progression of CKD before and after enrolled in the program

<table>
<thead>
<tr>
<th>Average score of knowledge about self management behavior</th>
<th>Before enrolled in the program (n=150)</th>
<th>After enrolled in the program (n=150)</th>
<th>Pair t test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td>39.58</td>
<td>6.28</td>
<td>54.99</td>
<td>1.34</td>
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</tbody>
</table>

*p<0.05, **p<0.01
### Study Result

- **Table 2. Comparative in average of clinical outcomes before and after enrolled in the program**

<table>
<thead>
<tr>
<th>Clinical Outcomes</th>
<th>Before enrolled in the program (n=150)</th>
<th>After enrolled in the program (n=150)</th>
<th>Pair t test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Systolic BP</td>
<td>146.40</td>
<td>11.68</td>
<td>136.35</td>
<td>10.25</td>
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<tr>
<td>Diastolic BP</td>
<td>77.60</td>
<td>9.65</td>
<td>74.45</td>
<td>7.02</td>
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<tr>
<td>Serum Creatinine</td>
<td>1.23</td>
<td>0.28</td>
<td>1.19</td>
<td>0.42</td>
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<tr>
<td>eGFR</td>
<td>53.24</td>
<td>14.25</td>
<td>58.78</td>
<td>14.28</td>
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</tbody>
</table>
Conclusions

These data suggest that chronic kidney disease management by nurse practitioner in primary care base on chronic care model is an effective method for managing patients with CKD in Thailand. The improvement in risk factors and reduction in the rate of decline of renal function potentially have significant health benefits for the patients and should result in cost effectiveness in health care system.