S11 - Evaluation of the Introduction of the Reference Framework for Diabetes among Primary Care Physicians in Primary Care Settings

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Aims and Objectives: This study evaluated the adoption of DM reference framework in Hong Kong and explored the factors associated with the adoption.

Methods: This study used a mixed-methods design with both qualitative and quantitative research methods. Ten focus group interviews were conducted with PCPs from: (1) group practice in private Health Maintenance Organisation (HMOs); (2) solo practice in the private; (3) General Out-Patient Clinics (GOPCs); (4) Family Medicine Specialist Clinics (FMSCs); and (5) academic fellows of family medicine besides clinical practice. Potential enhancing and hindering factors were explored under framework analysis. Self-administered surveys were sent via postal mails, emails, electronic web-based answering system and Continuous Medical Education (CME) lesson visits with a central registry consisting of 2,432 PCPs. Degree of adoption of the framework among PCPs was estimated. Multivariate logistic regression analyses were conducted to test the potential enhancing and hindering factors associated with adoption of the DM reference framework.

Results: The focus groups reflected that the reference framework included practical and sufficient recommendations which were supported by adequate and high quality evidences. Limited resources and inadequate allied health support were believed to be major hindering factors. A total of 414 completed surveys were collected. There was 72.2% of the PCPs highly adopted the DM reference framework in their routine practice. The most frequently delivered recommendation was measuring BP of all DM patients at every routine DM visit; while eye examination was less likely on Type 2 DM patients shortly after the diagnosis of DM and repeat annually.

Results from regression analyses suggested that the enhancing factors for adoption of this framework were inclusion of essential clinical information for DM management ($p < 0.001$) and ability to improve patients' knowledge on DM management ($p=0.012$); while the hindering factors were causing restriction on the choices of medical services ($p<0.001$), patients having low motivation to change their lifestyles into the recommended ones ($p=0.015$), together with failure of integrating the framework recommendations into current clinical settings ($p=0.017$).

Conclusions: The DM reference framework is practical with sufficient recommendations and adopted acceptably. Several enhancing and hindering factors have been identified. Efforts should be put to enhance eye examination and provide resources for better adoption among PCPs.

S12 - Evaluation of Quality of Care of Chronic Disease Management Programmes and Public-private Partnership Programmes of the Hospital Authority

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Introduction and Aims: To improve the quality of care of patients with chronic diseases in primary care, the Hospital Authority (HA) introduced a series of chronic disease management and public-private partnership programmes: Risk Factor Assessment and Management Programme (RAMP) and Patient Empowerment Programme (PEP) for patients with diabetes mellitus (DM) and hypertension (HT), Nurse and Allied Health Clinics programme (NAHC), and Haemodialysis – Public Private Partnership Programme (HD-PPP). This study aimed to evaluate and enhance the quality of care of these programmes to assure that best practices and outcomes could be achieved.

Methods: Action Learning and Audit Spiral Methodologies were adopted. Applying Donabedian's taxonomy of quality of care indicators of *structure, process and outcome of care*, an evidence-based evaluation framework was developed though an iterative process between the HA and research team.

Data collection for structure of care is through self-reported questionnaires distributed to participating clusters and clinics; data collection for *process of care* is extracted from the HA database; and data collection for *outcome of care* is through case report forms or extraction of clinical data from the HA's clinical management system. Both clinical and patient reported outcomes are collected.

Three evaluation (audit) cycles were planned. Each cycle evaluated achieved standards against pre-set targets, followed by identification of deficiencies and actions for quality improvement. Two cycles have been completed and the third cycle is currently on-going.

Results: All programmes have been successfully implemented, with the standards of most *structure and process of care* criteria reaching target standards in the first two evaluation cycles. Significant improvements in clinical outcomes have been achieved. Enhancement in facilities, data recording, management protocol adherence and indicators of quality were implemented after each cycle. RAMP-DM and PEP has been shown to reduce risk of cardiovascular morbidity and mortality. NAHC has been shown to increase recovery rates for wound healing and to reduce symptoms and improve quality of life for patients with continence problems. HD-PPP has had high participant satisfaction and retention rates.

Conclusions: Study results provide evidence on the quality of care and effectiveness of the programmes in enhancing the health of patients with chronic diseases in primary care. Empirical standards of good practice have been established which can be used as quality benchmarks. Ongoing evaluations should be conducted to assure the long-term sustainability and effectiveness of these programmes and to inform health policy and resource allocation.

S13 - Changes in Hospital Practices and Breastfeeding Outcomes after the Cessation of Complimentary Infant Formula in Public Hospitals

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Background: Infant formula supplementation of breastfeeding babies is one of the main contributors to early weaning. The provision of free infant formula to health-care institutions by formula manufacturers is a marketing strategy used by manufacturers to promote infant formula to new mothers. To promote and improve breastfeeding rates, the World Health Organization (WHO) has recommended that health-care institutions refuse free infant formula products and pay the market price. In April 2010, all public hospitals in Hong Kong stopped accepting free infant formula from manufacturers.

Objectives: To investigate the effect of public hospitals in Hong Kong not accepting free infant formula from manufacturers on in-hospital formula supplementation rates, baby-friendly hospital practices and breastfeeding duration and exclusivity. The effects of the amount of in-hospital formula supplementation and exposure to baby-friendly practices on the duration of breastfeeding were also investigated.

Methods: Two cohorts of breastfeeding mother-infant pairs (n=2560) were recruited from the in-patient units of four public hospitals in Hong Kong in the immediate postnatal period. Cohort 1 (n=1320) was recruited before implementation of the policy to stop accepting free infant formula and Cohort 2 (n=1240) was recruited after policy implementation. Participants were followed prospectively for 12 months or until the infant weaned.

Results: The mean number of supplements given to infants in the first 24 hours was 2.7 in Cohort 1, and 1.2 in Cohort 2 (SD=3.11 and 1.94, respectively, P<0.001). The proportion of infants exclusively breastfed during the hospital stay increased from 17.7% in Cohort 1 to 41.3% in Cohort 2 (P<0.001), and the risk of weaning was significantly reduced in Cohort 2 (HR=0.81; 95% CI, 0.73 to 0.9). The median duration of breastfeeding increased from 8 weeks to 12.5 weeks before and after the policy implementation. Participants who non-exclusively breastfed during the hospital stay had a significantly higher risk of weaning from any or exclusive breastfeeding with higher levels of supplementation increasing the risk in a dose–response pattern. Each baby-friendly practice experienced by the participants decreased their risk of weaning from any breastfeeding by 8% (HR=0.92; 95% CI 0.89-0.95) and from exclusive breastfeeding by 6% (HR=0.94, 95% CI 0.91-0.96).

Implications: Stopping the acceptance of free infant formula in maternity-care settings reduces unnecessary supplementation and thus should be implemented in all health-care setting providing obstetric and newborn care. Continued efforts by public hospitals to become more baby-friendly would benefit Hong Kong mothers and babies by enabling them to breastfeed for longer.