

per discharge in for-profit private hospitals might partially result from patient shifting. However, few studies have been conducted concerning the issue of patient shifting under case payment in Taiwan. Further research is needed to understand the extent of patient shifting or patient dumping which occurs among hospitals in Taiwan.

Implementation of Clinical Pathways

Clinical pathways, an operational version of clinical guidelines that designate the timing and sequence of desired care, are widely recognized as a mechanism to reduce hospital LOS and related costs while maintaining or improving quality of care under PPS.^{28,29} For example, Kelly et al. concluded that the use of a pediatric inguinal hernia surgical clinical pathway was associated with cost reduction while maintaining quality of care.³⁰ A recent study by Wazeka et al. in 2001 also found that implementation of a pediatric asthma clinical pathway resulted in significantly decreased overall costs.³¹ Likewise, many hospitals in Taiwan also began using clinical pathways to help clinicians manage variations in patient care processes and outcomes after implementation of case payment in 1995. For instance, the National Taiwan University Hospital organized a "clinical pathway implementation team" which consists of physicians, nurses, pharmacists, social workers, and administrative personnel in 1995 to develop clinical pathways for available case payment items. To date, plenty of published articles and dissertations have demonstrated the positive association between implementation of clinical pathways and low costs of patient care. Therefore, it is rational to believe that low costs per discharge in private hospitals under case payment could be partially attributed to implementation of clinical pathways.

Length of Stay (LOS)

This study reveal that LOS is positively related to costs per discharge; it suggested that the sampled patients had a gradual increase in costs with LOS with an average of NT2,372 higher costs for each day increase in LOS. Under PPS, hospitals have financial incentives to discharge patients earlier to gain maximum profits. Clarke and Rosen reported in 2001 that reduc-

ing the length of hospital stay is a policy aim for many health care systems.³² However, although much research has consistently verified the reduction in LOS following implementation of PPS, wide variations exist in LOS among hospitals. For example, Leung et al. found that LOS for maternity significantly differed among hospitals even after adjusting for the case mix.³³ Schwartz et al. reported that the mean LOS for hip fracture patients widely differed among hospitals.³⁴ Similar to the US experience, Lin et al. found that patients undergoing a transurethral prostatectomy admitted to public hospitals had a longer LOS on average than did those admitted to private hospitals in Taiwan.³⁵ These all provide evidence to support low costs per discharge in private hospitals possibly being due to shorter LOS.

Policy Implications

This study demonstrates that wide variations in costs per discharge exist among hospitals; the mean difference in costs per discharge among hospital levels reached as high as about NT5,000. Although the primary intention for implementing case payment was to encourage hospitals to contain costs, concerns have been raised about the issue of under-utilization of medical care provided by hospitals that may be harmful to patients. It is recommended that the BNHI oversee certain hospitals that are more likely to have unusually low costs per discharge to prevent the phenomenon of "quicker and sicker" resulting from premature discharge under PPS. Further research on comparisons of costs per discharge among hospitals is also critical because policy makers consider economic incentives when creating major reforms. It has become incumbent upon policy makers to monitor the consequences of intensive competition on the practices of various hospitals.

Two limitations of this study should be mentioned. First, because this study focused only on one disease, one might not be able to generalize the results to other diseases under the case payment system. However, since the data source was from the BNHI and data were collected nationwide, the ability to generalize the results is enhanced.

Second, because this study was a secondary analy-