

# Developing Component-based Case Management and Workflow Supporting Systems on the Web with Diabetes Case Management as an Example

Polun Chang<sup>1</sup> Kuo-Han Chang<sup>2</sup> An-Jim Long<sup>3</sup>

## Abstract

Retaining flexibility while expanding system functions fit in the workflows has been a critical challenge for the development of healthcare systems. This study shows how a component-based approach can fulfill the above challenge. This approach could enable users to set up a guideline-based workflow support system and expand and update system functions, with ease.

This study employed Microsoft ASP.NET to develop the example system, a diabetes case management component-based support system. The diabetes case management components enable a user to set up his or her own customized care support system using web services and workflow scheduling tools. This demonstrative system comprises four top-level menus: the workflow control engine, the workflow scheduling tools, the user interface set-up tools and the workflow control database. A total of 31 components in six groups, which are basic information, communication information, education, nursing evaluate, examination and complication, were developed to support any future system development.

The analytical results showed that these components must be kept as highly cohesive and uncoupled as possible to lower the development complexity, while ensuring that the system remains highly expansable. Nurse subjects perceived that this approach, and the demonstrating tools were helpful in decreasing the maintenance workload and in enhancing efficiency.

**Key words:** Web Services, component-based software development, diabetes case management, workflow

---

<sup>1</sup> Associate Professor, Institute of Health Informatics and Decision Making, National Yang-Ming University.

<sup>2</sup> M.S. Institute of Health Informatics and Decision Making, National Yang-Min University.

<sup>3</sup> Ph.D. Student Institute of Public Health, National Yang-Ming University.

Received: Oct. 4, 2004 Revised: Nov. 17, 2004 Accepted: Nov. 22, 2004

Address Correspondence to: Polun Chang, 155, Section 2, Li-Long St., Peitou, Taipei (112), Taiwan