# Design of a Web-Based Care Team Scheduler for PalmCIS

Peter D. Stetson, MD, Lawrence K. McKnight, MD, Elizabeth Chen, MA, James J. Cimino, MD
Department of Medical Informatics, Columbia University, New York, NY, USA

*We are building an extension of the existing Web-based clinical information system at Columbia-Presbyterian Medical Center (CPMC) that enables providers to communicate in a virtual environment. We call it a Virtual Whiteboard[1]. We intend to export the features of this application to a wireless PDA (PalmCIS). One of the elements required for this system is accurate information about which providers are covering each patient at any given time. This paper outlines our effort to build a web-based interface that captures the schedule information of clinicians. The application will automatically provide this information for display in the Virtual Whiteboard.*

## BACKGROUND

Systems analyses of adverse events have identified communication difficulties as a precipitant in both the inpatient[2] and outpatient settings.[3] Implementation of a computerized Signout system may reduce adverse events[4], and improve the identification of the attending of record.[5] In a recent survey, we found that physicians and nurses are often frustrated by lack of accurate information about who is on call for a particular patient.[6]

We built a Web-based interface to capture team schedule data to be stored in a database for use by our Virtual Whiteboard application.

## METHODS

Through direct observation, we modeled the current manual method used for schedule creation. We then built a database in MYSQL located on a central server. A Web-based interface was designed to duplicate and facilitate the entry of the schedule data. This interface dynamically collects data from forms and processes it in Perl CGI scripts. The processed data are then uploaded to the central MYSQL database in a form usable for two purposes:

1) Exporting team schedule information to the Virtual Whiteboard application.
2) Returning the data to the original users (the medical teams and nurses) via a Website accessible by all team members.

## RESULTS

The data collection view is shown in Figure 1. The graphical display of the scheduler output is shown in Figure 2.

Figure 1.

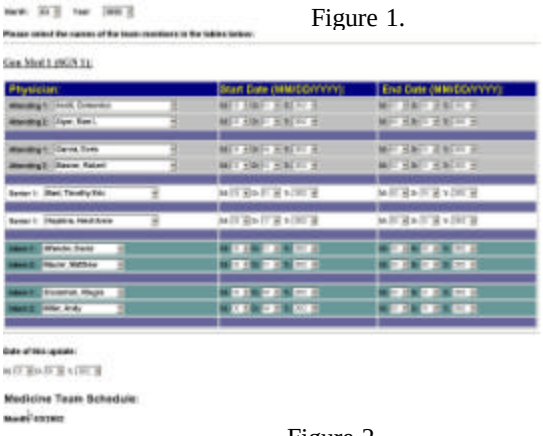
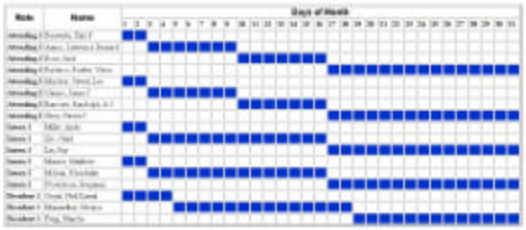


Figure 2.



## CONCLUSIONS

Collection of complex clinical team schedules can be accomplished by the method described and may provide an automated mechanism for capturing team coverage for a Virtual Whiteboard application.

### Acknowledgments

This work has been supported by the National Library of Medicine Training Grant NO1-LM07079.

### References

[1] McKnight LK, Stetson PD, Chen E, Cimino JJ. Improving Clinical Communication with a Virtual Whiteboard (submitted).
[2] Leape LL, Bates DW, Cullen DJ et al. Systems Analysis of Adverse Drug Events. 1995. JAMA. Vol 274 (1): 35 – 43.
[3] Bhasale, AL, Miller GC, Reid SE et al. Analyzing potential harm in Australian general practice: an incident-monitoring study. Med. J. Aust. 1998 Vol 169: 73-76.
[4] Petersen LA, Orav EJ, Teich JM, O'Neil AC, Brennan TA. Using a Computerized Sign-out Program to Improve Continuity of Inpatient Care and Prevent Adverse Events. J of Quality Improvement. 1998. Vol 24(2): pgs 77-87.
[5] Kannry J, Moore C. MediSign: Using a Web-Based SignOut System to Improve Provider Identification. Proceedings of AMIA 2001.
[6] McKnight L, Stetson PD, Bakken S, Curran C, Cimino JJ. Perceived information needs and communication difficulties of inpatient physicians and nurses. Proc AMIA Symp. 2001:453-7.