

Pictorial Dosing Guide



“In the end, our pictorial dosing guide delivered a better product than our original design, however the ‘program’ to construct the guide was entirely different.”

- Lindsay Zweiner
BIOE 260 Design Team
and BTB Summer Intern

Global Health Challenge

Worldwide, 85% of all children living with HIV reside in sub-Saharan Africa. Although anti-retroviral therapy may be available, the treatment and management of patients with HIV can be complex and demanding. At the BIPAI Centers of Excellence in Africa and Romania, the children face a myriad of challenges. They are often orphaned and living with grandparents who may be illiterate, have poor vision, and are caring for multiple grandchildren. Furthermore, as the children grow, their drug regimens change repeatedly. As a result, medication compliance tends to be poor, which results in a higher likelihood of developing drug resistance.

Appropriate Solution

The BIOE 260 design team created a software program to be used by medical personnel which will print a customized pictorial dosing guide (PDG) to illustrate a patient’s daily ARV drug regimen. Medical personnel will input information such as Patient Name, medication, time, and dosage. This information is then converted to a pictorial representation using images which can be easily understood by a caregiver as there is little or no text. The PDG is simple to operate, compatible with Windows, and can be edited. The projected cost per guide is less than \$.05 and is effective without color. The comprehensive PDG will allow caregivers to more easily administer ARVs. Guidance and mentoring were provided by Dr. Rebecca Richards Kortum, Ms. Yvette Mirabal, Dr. Elizabeth Lowenthal, Rice University Department of Bioengineering, Beyond Traditional Borders, and Baylor International Pediatric AIDS Initiative Center of Excellence (BIPAI).

Current Status

The BIOE 260 team implemented the Pictorial Dosing Guide in Gaborone, Botswana in the summer of 2007. The original PDG, a web-based PHP program, was not viable due to unreliable internet connections and an inability to download software onto government-owned computers. Instead, the design team members created 12 separate word documents for the 12 standard ARV regimens. Doctors would choose one of the documents based on the particular drug combination and copy or delete medication pictures depending on the required dosage. There was also a blank template with all the ARV medication images for patients with nonstandard drug regimens. The redesigned PDG was successful and is currently used in the clinic.

An initiative for the advancement of appropriate, high-value innovations in global health biotechnology

BEYOND TRADITIONAL BORDERS



Rice University
6100 S. Main St. - MS142
Houston, TX 77005

Ph: 713-348-4549
Fax: 713-348-5877

E-mail: beyondtraditionalborders@rice.edu

Student Design Team

Ivy Kuperburg
Junaid Niazi
Sanna Ronkainen
Lindsay Zweiner

BIPAI Baylor International
Pediatric AIDS Initiative
at Texas Children's Hospital

HIMI
HOWARD HUGHES MEDICAL INSTITUTE

This initiative is made possible by a grant to Rice University from the Howard Hughes Medical Institute through the Undergraduate Science Education Program.