WEB-BASED INFORMATION MANAGEMENT SYSTEM FOR PROSTATE CANCER EDUCATION AND RESOURCES FOR COUPLES

YINGQIU ZHOU

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20.1 million noninstitutionalized adults who had been diagnosed with different types of cancer in U.S by 2012

### Cancer Treatment

#### Diagnostic
- Patient’s Information Needs
  - Treatment-related
  - Cancer-specific
  - Rehabilitation
  - Prognosis
  - Coping
  - Interpersonal/social
  - Body image/sexuality
  - Surveillance and health
  - Financial/legal
  - Medical system

#### Communication
- Family and Friends’ Information Needs
  - Treatment-related
  - Diagnosis-/prognosis-related
  - Coping
  - Self-care/homecare
  - Cancer-specific
  - Impact on family
  - Support
  - Relationship with partner
  - Practical issues
  - Hospital care
  - Follow-up/rehabilitation

### Sources
- Media
- Interpersonal
- Healthcare Professions
- Printed Materials
- Organizational Scientific
- Social Media
Internet-based intervention in cancer, related studies
- Efficacy Trial of An Internet-Based Intervention for Cancer-Related Female Sexual Dysfunction
- Internet-based interventions for cancer-related distress

Prostate Cancer Education and Resources for Couples
- A Couple-Centered Web-Based Symptom Management Program
- Patient and partner portals
- Increase their knowledge about symptoms related to prostate cancer and its treatment
- Improve their skills in managing symptoms
- Enhance their relationship skills and their ability to communicate with each other about prostate cancer and related issues
Receive User Requests
Analyze User Needs
Privacy
Timeline and Deliverables
Local Environment Configuration
Migration to Web Server
Information Security
Database Design
Information Storage and Analysis
Create and Modify Forms
Backup
Database Updates
INFRASTRUCTURE

nuBuilder pro

An open source application builder and database frontend to create fast web-based business applications and build forms and reports and specify access levels for different users.

LimeSurvey

an Open Source PHP web application to develop, publish and collect responses to online & offline surveys.

phpMyAdmin

A tool written in PHP intended to handle the administration of MySQL over the WWW.

Windows Server 2008

a Windows web development environment. It allows you to create web applications with Apache2, PHP and a MySQL database.

MySQL

JavaScript

jQuery

AJAX

infrastructure
TRACKING PATIENT INFORMATION – WEB PORTAL

Admin views
Create forms
Define variables

User views
Add new records to forms
View and Sort records
**Tracking Patient Information - Database**

View from phpMyAdmin

Before phone screening

Set keys, default values and restrictions, for easier information retrieval and integration by SQL

After phone screening
**SURVEY COLLECTION INTERFACE AND DATA COLLECTION**

**Web portal**

**PERCSurvey**

The following surveys are available:

- Baseline Survey - Patient
- Post Survey - Caregiver
- Baseline Survey - Caregiver
- Post Survey - Patient

Please contact Administrator (ygzhou@email.unc.edu) for further assistance.

**Data exportation as csv files for statistical analysis**

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**PROGRESS AND STATS**

- **Duration**
  - > 6 months in total, first 3 months for initial screen

- **Patient Information**
  - Started with 266 patients (initial phone screen)

- **Surveys**
  - Baseline: patient 23 responses and 3 partial completions
  - Baseline: caregiver 22 responses
  - Post: patient 13 responses
  - Post: caregiver 12 responses

- one administrator and > 3 users
FUTURE DIRECTIONS

- Accessibility
  - Currently local accessibility (IP address specified) due to security reason
  - Patients and partners can access to the surveys in the future

- Scalability
  - Currently small scale and manually input for patient information
  - Import information externally

- Advanced queries

- Automatic alerts
  - Send reminders during study process for information collection and surveys

- Design Modification (user requests)
REFERENCES

- Database Design and Relational Theory, Publisher: O'Reilly Media, April 2012
- Improving Couples’ Quality of Life Through a Web-Based Prostate Cancer Education Intervention, ONF 2015, 42(2), 183-192
- New Challenges in Communication with Cancer Patients, 2013
- Internet-based interventions for cancer-related distress: exploring the experiences of those whose needs are not met, Psychooncology. 2014 April; 23(4): 452–458
- Efficacy Trial of An Internet-Based Intervention for Cancer-Related Female Sexual Dysfunction, J Natl Compr Canc Netw 2013;11:1389-1397
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