

# Interactive Web-Phone Technology to Support and Optimize Care Plans

**Problem:** While most segments of society use technology to improve their operations, the human services lag behind. Technology that would help care managers handle large caseloads, target those at high risk, personalize agency monitoring, support the client's change process, predict success, follow-up with booster information, and gather follow-up evaluation data would be a tremendous help.

**Proposed Solution:** Researchers at The University of TX--Arlington Schools of Social Work and Computer Science and Engineering are developing a web-phone system to support care managers and optimize client outcomes. For each treatment plan objective, the system allows the care manager to schedule reminders, ask questions of a client or a client's significant other, or deliver messages on an hourly, daily, weekly, or monthly basis. The system calls the client at agreed upon times, delivers reminders and messages, asks questions, graphs responses on a web site, sends desired alerts, and flags potential problems or opportunities using smart algorithms. It uses text-to-speech and speech recognition along with landline, cell, smart, and VOIP phone technology. The system can also deliver pre-recorded audio files. Development is in partnership with Mental Health Mental Retardation of Tarrant County with Support from the National Institute of Health, National Library of Medicine.

**System Description:** The proposed system has five modules.

1. A **setup module** or web page where care managers and the client specify when the client wants to be called, how often, who else to involve in the care management process (e.g., a spouse), etc.
2. A **message module** that delivers messages to inform, remind, suggest, persuade, encourage/motivate, teach, reward, query and branches, and query and alert. The messages could be triggered based on client readiness stage, phase of treatment, analyses of survey data, or predictions of treatment plan success or failure.
3. A **survey module** or web pages where care managers, clients, and/or significant others set up the treatment plan goals and objectives along with the survey questions and alerts that are triggered based on replies. Basic survey questions for a treatment plan objective involving medication could be:
  - a. Did you take your 9:00 medication? (If no, deliver a motivational message and call back at 9:30)
  - b. Do you feel your medication is working? (If no, instruct to record problems and email MHMR)
  - c. Do you need an appointment with your care manager? (If yes, alert care manager)
  - d. Do you want to leave a message for your care manager? (If yes, record and email message)
4. A **graphics module** or web site that graphically displays survey results over time to those needing to see the results, e.g., the care manager, client, spouse, or a judge.
5. A **prediction module** that uses techniques such as data mining to predict adherence and non-adherence to objectives and flag risks and opportunities. This module makes the system smarter with use, i.e., able to better predict and give rationales for the prediction.

**Potential Use of the System:** The service plan management system has applicability for anyone following a plan of care. Examples of clients are the elderly, those with mental disabilities, those on probation and parole, those with hectic life styles, etc. It can be used as an intervention booster, for delivering cognitive behavioral interventions, or for client follow-up.

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