We invite you to participate in the

Fifth Annual WPIC Research Day

Monday, June 13, 2005

9:00 am – 3:30 pm

Biomedical Science Tower, First Floor (Room S-100)

Keynote Speaker

Katherine Wisner, M.D.
Professor of Psychiatry

Research Day Awards Presentation

Thomas Detre, M.D.
Distinguished Service Professor of Health Sciences
Professor of Psychiatry

Mentorship Award Presentation

David J. Kupfer, M.D.
Thomas Detre Professor and Chair
Department of Psychiatry

There will be a $750 prize for the best poster and best oral presentations

This full day event celebrates the research accomplishments of those in training at WPIC. We invite you to join us for this exciting program.

Please make plans to participate!
CareMedia: Automated Video and Sensor Analysis for Geriatric Care

AJ Bharucha, D Chen, H Wactlar, S Stevens, C Atkeson, MA Dew, BG Pollock
University of Pittsburgh School of Medicine and Carnegie Mellon University

Study: The Omnibus Budget Reconciliation Act of 1987 (OBRA-87) mandated non-pharmacological interventions for the emotional and behavioral problems of nursing home residents prior to resorting to pharmacotherapy. Nonetheless, the design and implementation of specific non-pharmacological interventions has been hampered by the lack of a sound understanding of the environmental context of these disturbances in nursing homes. CareMedia is developing a suite of techniques and methodologies that capture in real-time a continuous audiovisual and sensor record of the pattern of activities, behaviors and social interactions of nursing home residents while simultaneously developing tools for automated data reduction, and safeguarding privacy.

Methods: A pilot, feasibility study was conducted on a dementia unit by instrumenting the hallway, dining and living room with video cameras and audio-phones that stored data directly onto computer hard drives. The residents’ activities were recorded during 4 two-hour blocks of time over 10 days, and these data were processed with human coding and machine intelligence technologies.

Results: During the recordings, 8 consenting residents were observed in the non-private spaces of the dementia unit for 13.6-24.6% of the recorded time. Of this, interpersonal interactions of any kind (verbal or physical; with staff, visitors, other residents) were noted in < 20% of the recorded time. Meal times accounted for > 75% of the interpersonal interactions. Seven bouts of physical aggression were observed, all accounted for by two residents, and preceded in 4 cases by verbal aggression within 30 seconds of the events. The remaining 3 bouts of physical aggression were un-witnessed by staff, as were six elopements from the unit behind unsuspecting staff and visitors.

Conclusion: Application of computer machine intelligence technologies in a nursing home environment is feasible, and will permit truly longitudinal, ecological studies of chronic care populations with continuous capture of objective measurements of their patterns of activities, behaviors and social interactions.

Significance: Objective, continuous measurement of various aspects of physical and emotional health of nursing home residents will permit more appropriately targeted interventions, and this technology will serve as a sensitive outcomes measurement tool.

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