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November 11, 1997

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**RE: "Sensitizing Students to Functional Limitations in the Elderly: An Aging Simulation"**

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Call me if you have any questions, and thank you for your help.

With warm regards,
Yours sincerely,

Jon Cartwright

Jon Cartwright
Publications Assistant

jc

Educational Research and Methods

# Sensitizing Students to Functional Limitations in the Elderly: An Aging Simulation

Viki Lorraine, MS; Sherry Allen, LPN; Anne Lockett, MD; Carolyn M. Rutledge, MS, CFNP

Background and Objectives: *Using activities of daily living (ADLs) and instrumental activities of daily living (IADLs) as a focus, faculty at Eastern Virginia Medical School provide an aging simulation exercise for a mandatory fourth-year clerkship in geriatrics. The specific aims of the simulation are to 1) experience the physical frailties of aging, 2) develop creative problem-solving techniques, 3) identify feelings regarding the experience of functional loss, and 4) develop proactive clinical approaches to the care of the elderly.* Methods: *Students are assigned one of four diagnoses (Parkinson's disease, rheumatoid arthritis, advanced diabetes, or stroke) and are then impaired to simulate the frailties of the condition, using a variety of clothes, bindings, and other devices. In their "impaired states," they perform ADLs and IADLs, such as paying bills, organizing their pills, shopping, toileting, dressing, and eating.* Results: *Evaluation results show the aging simulation to be the highest rated program in the clerkship. A pre- and post-course survey on attitudes toward the elderly showed a statistically significant improvement in students' attitudes toward the elderly following the course.* Conclusions: *Simulation exercises in aging are useful activities for helping students better understand the feelings and needs of the elderly.*

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By the year 2000, the number of people age 65 and older in the United States will increase to more than 39 million.[1] Ninety-five percent of elders currently living in the United States are not institutionalized, but about 8% of those living within the community require assistance performing activities of daily living (ADL).[1] Primary care physicians are responsible for the health care of most of these elderly people.

Much of medical school education is academically oriented and focuses on facts and figures rather than feelings. Educational experiences tend to focus students on their role as providers of care to disabled patients or as passive observers of other providers rendering this care.[2-4] Students learn little about how it feels to experience the changes inherent in growing old. Their own inexperience, as well as the theoretical nature of their training, makes it difficult for students to empathize with the experiences of the elderly patient. Not surprisingly, patients often complain that physicians are insensitive and lack understanding and concern for them as individuals.[5,6]

From the Department of Family and Community Medicine, Eastern Virginia Medical School, Norfolk, Va

Recently, attempts have been made to sensitize students to geriatrics issues. At State University of New York-Upstate Medical Center's Clinical Campus, an activity called "Geriatrix" involves students role-playing patients, physicians, staff members, and family members in a board game that promotes discussion of ethics and attitudes.[7] The primary focus is on sensitizing medical students to the concerns and perspectives of key participants in the geriatric health care system. Duke University and the University of Mississippi provide an aging simulation using cards, called the "aging game." The emphasis of this is on simulating increased dependency, rather than ability to perform ADLs.[7,8] At McMaster University, a more extensive simulation is used, with a focus on experiencing the disabilities and chronic illnesses of the elderly in inpatient and outpatient settings.[9]

One of the goals of Eastern Virginia Medical School's (EVMS) aging simulation is to sensitize medical students to the principal difficulties of aging. The EVMS program differs from other programs in that it emphasizes the role of functional ability in the geriatric patient and the importance of assessing the functional capacity of the caregiver. The main focus is on the possibilities of successful adaptation

to functional loss. In many areas of the United States, ADLs and independent activities of daily living (IADLs) are used as the primary screening tools for nursing home placement and home care assistance. The EVMS program was therefore structured around several specific concepts pertinent to medical students, including 1) recognizing the importance of functional ability in determining quality of life and patient compliance, 2) developing proactive clinical approaches to the care of geriatric patients, 3) identifying feelings regarding the experience of functional loss, and 4) developing creative problem-solving techniques relevant to individual patients.

## Methods

### *Course Description*

Our aging simulation is part of a 2-week, mandatory geriatric clerkship for fourth-year students at EVMS. The aging simulation is led by a multidisciplinary team of faculty facilitators (a family physician, a nurse, and a social worker) from the Department of Family and Community Medicine. The geriatric clerkship occurs eight times a year and has 12 students in each group. The entire simulation takes place in a retail store that sells durable medical equipment and supplies. This type of facility is an excellent site because many of the aids used by the students (walkers, nutritional supplements, compression stockings, gloves) during the simulation are available there. In addition, it provides a realistic setting for accomplishing the IADL of shopping. From start to finish, it takes approximately 3 hours to complete the simulation, which is divided into three phases: 1) pre-simulation discussion, 2) participation in simulation, and 3) post-simulation discussion. By offering the program during the fourth year, students are familiar with the different medical problems and are able to apply their medical knowledge and past experiences to the simulation exercise.

During the pre-simulation discussion, the facilitators explain the purpose and process of the various activities involved in the simulation. This is important in reducing students' anxiety and in eliminating initial fears about the program. Students are assured that the exercise should not cause serious discomfort or humiliation. Since the entire simulation exercise is held during business hours in a retail store, students are told that store employees inform all customers of the aging simulation exercise when they enter the store. The facilitators also pose a number of questions for students to consider while experiencing the simulation. These include, "How could your physical limitations affect your compliance?" and "How could you assist a patient with this disability?" Students are encouraged to come up with creative solutions for adapting to the various ADL and IADL tasks.

All students begin their participation in simulation by putting on disposable undergarments. Next, they are assigned a diagnosis of either Parkinson's disease, rheumatoid arthritis, diabetes, or stroke (Table 1). They are then "impaired" in ways that simulate their diagnosis, including 1) glasses that simulate cataracts, glaucoma, and stroke-related vision impairment, 2) gloves and foam-filled slippers that simulate neuropathy, 3) tied ankles that force a narrow-based gait, and 4) taped fingers, knee braces, arm slings, and cervical collars that mimic the joint immobility of arthritis or Parkinson's disease. In their impaired state, students try to accomplish basic ADLs and IADLs (Table 2), including paying bills, organizing their pills, shopping, toileting, dressing, and eating while rotating through various stations set up throughout the retail store. For example, at

**Table 1**

**Simulation of Medical Conditions**

| *Medical Condition* | *Symptoms* | *Equipment* |
|---|---|---|
| Parkinson's disease | • Neck rigidity<br>• Shuffling gait<br>• Stooped posture | • Cervical collar<br>• Ankles tied with twine<br>• Weight belts strapped to shoulders |
| Rheumatoid arthritis | • Stiff fingers<br>• Pain on walking<br>• Stiff knees | • Taped fingers<br>• Macaroni in shoes<br>• Knee braces |
| Diabetes | • Visual loss<br>• Neuropathy of hands and feet | • Vaseline-coated glasses<br>• Gloves and foam-filled slippers |
| Stroke | • Dominant-side weakness<br>• Visual changes | • Arm sling<br>• Glasses with partial visual obstruction |
| Incontinence | • Inability to control bladder<br>• Urgency | • Disposable undergarments<br>• Portable potty |
| Glaucoma | • Loss of peripheral vision | • Plastic glasses with pinholes |

Students are also challenged by using wheelchairs, walkers, and canes.

the station where bills are paid, students are given three to four bills, such as phone, gas/electric, and insurance bills, which are often the most difficult to read. Copies of actual bills collected from the facilitators and medical staff are used. Blank checks are supplied for free by a local bank. In activities such as putting on compression stockings, feeding, and shopping, students are paired as patient and caregiver. A student with the diagnosis of rheumatoid arthritis of the hands and feet is asked to put compression stockings on their "simulated spouse," who is wheelchair bound. Later at the feeding station, the spouse feeds their partner baby food that simulates a low sodium, mechanical soft diet.

The post-simulation discussion, also facilitated by the faculty team, focuses on students' feelings regarding the simulation. They are encouraged to discuss proactive planning that would enhance management of geriatric patients. The role of the caregiver is also explored, including the physical and emotional stress involved in caring for a parent or spouse. Part of the discussion revolves around the ways students adapted to accomplish a particular ADL or IADL task. Also explored are techniques for improving communication with elderly patients, adapting office procedures to better accommodate the frailties of aging, and comprehensive approaches to chronic conditions.

*Evaluation*

Over the past year, 100 fourth-year medical students participated in the aging simulation as part of their mandatory geriatrics clerkship. All of the participants completed the course evaluation. The process evaluation included an item that asked, "How would you rate the aging simulation exercise?" Students responded to this question by circling a number from 1 to 9, with scores of 1–3 indicating poor, 4–6 indicating good, and 7–9 indicating excellent. Students also completed a pre- and post-course survey on attitudes toward the elderly, using the Aging Semantic Differential Scale.[3] The scale has been validated and consists of 32 items on a 7-point scale, with lower scores indicating a more-positive view. Total scores range from 32 to 224. Students then responded to open-ended questions about the strengths and weaknesses of the simulation exercise.

*Data Analysis*

Descriptive statistics (chi square, standard deviation [SD]) were used for the process evaluation of the course. A *t* test was used to assess changes in attitudes toward the elderly following the course. The analyses were conducted using Proc *t* test and Proc Univariate in SAS, version 6.08.[®] Responses to open-ended questions were compiled.

**Results**

The average score on the question, "How would you rate the aging simulation exercise?" was 7.36 (SD=1.66), which was in the "excellent" range of the 9-point scale. The aging simulation exercise was the highest rated program in the geriatrics clerkship. The mean score on the Aging Semantic Differential Scale before the course was 171.59, and the mean score at the end of the course was 148.69. This represented a statistically significant improvement in students' attitudes toward the elderly following the course ($t$=3.46, $P$<.001).

Students responded to open-ended questions about the program and reported that the simulation gave them a realistic look at the frustrations that elderly persons may experience and increased their awareness of what it is like to be functionally impaired. Common reactions to the simulation included fatigue from performing the simplest actions, frustration in per-

**Table 2**

**ADL/IADL Simulations**

| *ADL/IADL* | *Activity* | *Equipment* |
|---|---|---|
| Feeding | • Students feed each other | • Baby food<br>• Ensure<br>• Utensils/syringes<br>• Bibs |
| Paying bills | • Identify billing source and amount<br>• Write checks while handicapped | • Bills<br>• Checks<br>• Pens |
| Organizing pills | • Open bottle<br>• Identify prescribed doses<br>• Fill pill-reminder box | • Pill bottle and pills<br>• Pill-reminder box<br>• Written list of medications |
| Dressing | • Put on compression stockings while handicapped | • Compression stockings |
| Shopping | • Identify items on shopping list<br>• Retrieve identified items in a store | • Shopping list<br>• Items in store |

ADL—activities of daily living
IADL—instrumental activities of daily living

forming tasks that are normally accomplished almost without thinking, anger at not being able to read a physician's orders, and empathy for caregivers. Reported as well were an understanding of the feelings of paranoia from not being able to see or hear what is going on, depression at the idea that physical improvement might be unlikely, embarrassment at having to ask for help, and fear of purchasing the wrong product or paying a bill incorrectly. Students stated that they were apprehensive about the experience before it began; however, after participating in the simulation, they felt positive about it. Some of the students felt that the simulation would have been helpful during their third year. There were no negative comments about the experience.

## Discussion

The aging simulation exercise provides students with an opportunity to experience the potential functional limitations of aging. When caring for any age-delineated group of patients (children, adolescents, the elderly), physicians must be aware of the group's special needs so they can be addressed. By providing students with an opportunity to experience the limitations faced by many geriatric patients, students become aware of issues related to their patients that might otherwise go unnoticed. Some of these issues point out the real obstacles to medical compliance and how they ultimately affect patient outcomes.

One goal of this experience is to encourage students to develop creative approaches and solutions for use in future encounters with geriatric patients. During one simulation activity, the students attempt to organize their medication for the week using handwritten instructions and a pill organizer with single compartments corresponding to the days of the week, while experiencing decreased vision, dexterity, and/or sensation. All students found it frustrating to deal with child-protective caps, pills that look similar, and the small handwritten instructions. Creative problem-solving ideas included 1) writing on the actual prescription for the pharmacist to remove the cotton and replace the child protective cap and 2) printing with a thick black marker when giving an elderly patient written instructions. Other students discovered that disposable undergarments used for incontinence can be uncomfortable and might be embarrassing.

Another goal of the aging simulation was to increase students' empathy toward the elderly. Having students personally experience frailties associated with aging and the functional limitations resulting from these frailties has proven to be an effective way to increase their empathy toward the elderly. The small-group discussion with faculty facilitators following the simulation is particularly important in that it allows students to process the physical and psychological experience of being elderly and share their feelings of frustration and anxiety. Identifying their fears about disability and dependency also seems to increase their degree of empathy for elderly patients.

Among the major roadblocks that many students face when caring for elderly patients are personal feelings of helplessness and frustration at being unable to make a difference in the long run. These feelings often result from a combination of ignorance about what the elderly actually face on a daily basis, as well as students' fears about their own aging and end-of-life issues. By allowing students time to examine these issues in practical ways (eg, coming up with creative solutions to some of the more common functional challenges), students discover that they are not really as helpless as they may have believed and can instead be proactive with their patients. Finally, allowing students to face their own fears about aging and helping them deal with these fears in a constructive and positive way has potential to enhance both their personal and professional lives.

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