Using the 4Ms framework to teach geriatric competencies in a community clinical experience

Margaret Avallone DNP, RN, CCRN-K, CNE
Elyse Perweiler MA, MPP, RN
Staci Pacetti PharmD

1Rutgers University School of Nursing-Camden, Camden, New Jersey, USA
2Department of Geriatrics and Gerontology, Rowan School of Osteopathic Medicine, Stratford, New Jersey, USA

Correspondence
Margaret Avallone, DNP, RN, CCRN-K, CNE, Rutgers University-Camden, 530 Federal St., Camden, NJ 08102.
Email: Margaret.avallone@rutgers.edu

Funding information
Health Resources and Services Administration, Grant/Award Numbers: T1MHP39061, U1QHP28714

Abstract
Background: As the population of older adults in the US steadily increases and becomes more diverse, there is an urgent need to integrate geriatric competencies into baccalaureate nursing education.

Purpose: To integrate the Institute for Healthcare Improvement 4 Ms Framework into an existing baccalaureate nursing community clinical experience to build geriatric and interprofessional competencies and promote positive health outcomes.

Methods: As part of the Geriatric Workforce Enhancement Program, 15 students worked with bilingual social workers and community health workers in an affordable housing urban highrise, assessed building residents and implemented personalized plans of care using the 4Ms framework (what matters to the individual, medications, mentation, and mobility).

Results: Students demonstrated competence conducting cognition and depression screening, medication review, and functional and fall risk assessments. Student self-rated achievement of learning objectives ranged from 4.3 to 4.8 (1–5 scale). A retrospective pretest-posttest survey suggested learning about the importance of interprofessional teamwork, and integration of person-centered values when providing care to older adults in the community. Students reflected on barriers to health for older adults in low socioeconomic states and the importance of improving care across the continuum.

Conclusion: The 4Ms framework provided a valuable construct to guide the community experience and teach geriatric evidence-based practice to nursing students.

KEYWORDS
4Ms framework, geriatrics, nursing student-baccalaureate, older adults, social determinants of health

1 INTRODUCTION

The emerging healthcare workforce must be educated to care for an increasingly older and diverse population. By 2030, it is projected that 78 million seniors will be over the age of 65. Older adults experience higher percentages of chronic conditions including Alzheimer’s disease and related dementias, hypertension, heart disease, diabetes, osteoarthritis, and chronic obstructive pulmonary disease. Chronic diseases can limit one’s mobility and independence, causing significant financial and care burdens and result in frequent hospitalizations.

The older population is not only growing, but is becoming increasingly more racially and ethnically diverse. Racial and ethnic
minorities comprise 22% of the older adult population, and the percentage is projected to increase to 28% by 2030. Rates of poverty are more than doubled in Hispanic and Black/African American populations over the age of 65 compared with the White population of the same age group. Socioeconomic disparities in the older diverse adult population increase the risk for poor health outcomes and increase healthcare needs with age.

Nursing graduates must be educationally prepared to close gaps in quality healthcare that exist for older adults in low income and diverse communities. Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population. Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.9,10 Clinical experiences linking educational objectives with services intended to benefit the community highlight awareness of social justice and appreciation for the impact that social determinants play on the health of a population.

The IHI Age-Friendly 4Ms framework is based on principles of age-friendly health systems and communities. The model was derived from research, evidence-based geriatric models, and recommendations from geriatric specialists. It gives healthcare providers, systems, and communities a roadmap when addressing gaps in care for older adults across the continuum of care. The 4Ms framework may be one construct to guide curricular initiatives and clinical experiences when teaching optimal care for older adults. The four components of the model include: what matters, mobility, medications, and mentation.

1. What matters: involves knowing and acting on each older person’s specific health outcome goals and care preferences to provide true person-centered care.
2. Mobility: healthcare providers “help older adults move safely every day to maintain function and do what matters, and prevent complications of falls and immobility.”
3. Medications: when possible, healthcare providers should optimize the use of medications to reduce harm and burden, focusing on medications that will not adversely affect mobility, mentation or what matters.
4. Mentation: efforts are made to prevent, identify, treat, and manage delirium, depression, and dementia.

3 | DESCRIPTION OF PROJECT
The reconfigured community clinical experience was part of the New Jersey (NJ) Geriatric Workforce Enhancement Program (NJGWEP), a 5-year grant supported by the Department of Health and Human Services-Health Resources and Services Administration, the goal of which is to “develop a healthcare workforce that integrates geriatrics into primary care and maximizes patient/family engagement.” The IHI 4Ms framework provided the model to reconfigure the existing community clinical experience.

The NJ Institute for Successful Aging at Rowan School of Osteopathic Medicine, Fairshare Support Services, Inc. at Northgate II Housing development, and the Rutgers School of Nursing-Camden were established academic-practice partners for several years before the fall of 2019. However, the decision was made to strengthen the learning experience for students and improve outcomes for older adults by integrating the 4Ms framework into the clinical experience. An interprofessional planning team, with representatives from the NJ Institute for Successful Aging, the Rutgers School of Nursing-Camden and Fairshare Support Services met during the summer of 2019 to redesign the clinical experience. This redesign included revisions to the clinical learning objectives, the weekly interprofessional case presentation format, orientation plans for student and staff, as well as processes for student evaluation. Finally, a retrospective pretest-posttest evaluation of change in knowledge survey was developed with team input, based on desired end-of-rotation learning outcomes. A retrospective pretest-posttest survey design has benefits in program evaluation because it allows participants to reflect on changes in knowledge or skills that occurred over the evaluation period. In a retrospective pretest-posttest survey, participants rate their status using the same frame of reference and therefore reduce the tendency to over-rate their competence or knowledge at the beginning of a program. IRB approval was obtained for this quality improvement project.

3.1 | Setting
Northgate II, a 23-story highrise building with 308 apartments, served as the setting of the redesigned interprofessional clinical learning experience. Northgate II is part of the Fairshare Housing, a 501(C)(3) nonprofit organization, providing affordable housing for residents in the city of Camden, NJ. Fairshare Support Inc. provides social and wellness services for 340 residents of Northgate II Housing. The residents are predominantly Hispanic in origin (65%) or Black (29%), disabled, and older. Thirty-three percent (33%) of the residents are aged 55–64 and another 32% are over the age of 65. Overall, the city of Camden, NJ is one of the poorest cities in the United States. The percentage of persons living at or below 100% of the federal poverty level in the city of Camden is 40.9%, as compared to a 13.5% poverty rate throughout other cities in the United States.
The Rutgers School of Nursing-Camden is located less than one mile from the Northgate II Housing Development. The school’s curriculum reflects a commitment to educating students on the specific issues and challenges facing underserved communities of disadvantaged backgrounds.

### 3.2 Clinical experience

During fall 2019 and the first half of Spring 2020, 15 senior nursing students participated in the redesigned experiential learning opportunity, joining an interprofessional team of social workers, community health workers, nursing faculty, and a doctor of pharmacy (PharmD) at the Northgate housing development. This redesigned interprofessional experience was one clinical option for students enrolled in the Community Health Nursing and Global Health course. Students are simultaneously enrolled in an Aging in Healthcare course. Each student participated in a 7-week rotation at Northgate Housing, 1 day per week for seven weeks. The rotation was canceled for the second half of the Spring 2020 cohort due to the COVID-19 pandemic.

#### 3.2.1 Orientation

On the first day of clinical, students received a comprehensive orientation provided by School of Nursing Faculty, Fairshare Support Services staff, and faculty from the NJ Institute for Successful Aging. Orientation topics included the 4Ms framework, healthy aging concepts, cultural considerations when making home visits, and interviewing techniques using an interpreter. Medication issues in the older adults, functional assessment and fall risk assessment in the home were also presented to students. A refresher on dementia and depression in older adults was provided as well as part of orientation.

Students were assigned a module from the Centers for Disease Control (CDC) entitled Stopping Elderly Accidents, Deaths, and Injuries (STEADI) Older Adult Fall Prevention Online Training for Providers before the beginning of the clinical experience.

Learners were familiarized with all components of a resident health risk assessment (RHRA) form. This assessment tool, developed by the NJ Institute for Successful Aging in collaboration with its NJGWEP partners, was structured using the 4Ms framework. The assessment was used to obtain information on building residents regarding basic health and social history, medication use and knowledge, functional assessments, mentation screening and what mattered to the individual, contributing to development of a person-centered plan of care. Students were also educated and evaluated on their ability to accurately administer and score the Minicog screening for cognitive impairment in older adults. This instrument takes about three minutes to administer and is part of a holistic memory screen and evaluation. To evaluate student competency performing this assessment, students administered the Minicog to a family member or a friend, scored the assessment, and then uploaded the video and scoring sheet to the course learning management system. Faculty then provided constructive feedback to students.

#### 3.2.2 Clinical structure

After successful completion of all orientation requirements, nursing students were paired with bilingual social service staff for weekly home visits for the remainder of the seven-week clinical experience. The social service staff, comprised of social workers and community health workers, have established rapport with the building residents. They are also knowledgeable about the availability of social resources within the community to assist in meeting the needs of residents with socioeconomic complexity and cultural diversity. The addition of the nursing students, with support from doctor of nursing practice faculty and a doctor of pharmacy faculty member, provided nursing expertise surrounding health assessment and care planning, health promotion, disease management, and medication optimization.

Teams made scheduled visits to resident apartments and used the RHRA to develop individualized, resident-centered plans of care. Resident visits were prioritized for those recently discharged from inpatient facilities, older residents with two or more chronic diseases, and individuals with potential safety or fall risk concerns. Follow-up visits were structured around the 4Ms framework and helped residents develop strategies to successfully age in place, based on individual healthcare goals.

#### 3.2.3 What matters

At the beginning of each health assessment interview, the nursing students sought to establish rapport with residents. The teams developed individual goals and person-centered care plans with the residents, by first, identifying “what matters” to the individual. “What matters” formed the basis of the subsequent interviews and care planning. For example, one resident identified that “what mattered” to her was the ability to attend her place of worship. Due to mobility issues and lack of transportation, she was unable to leave her apartment. The team worked to remove barriers to her mobility and worship attendance by obtaining prescriptions for a walker and for home physical therapy, and arranging transportation to worship services with church members.

Many older adults identify that aging in their home “matters” most to them. When the team demonstrated their shared goal to promote aging in place, they built trust with residents and worked jointly to problem solve. Aging in place also means optimizing health, providing needed services and preventing hospitalizations. The students supported this goal when teaching about disease management, medications, and home safety.

#### 3.2.4 Mentation

The Minicog screening was incorporated into the RHRA during home visits. Residents who screened positive for dementia were referred to an Interprofessional Memory Assessment Program for further
evaluation and treatment, if necessary. Residents were also screened for depression using the patient health questionnaire (PHQ-2) as part of a mentation and mood assessment. If residents screened positive in the PHQ-2, additional follow-up was provided by the social work staff as warranted.

### 3.2.5 | Medications

Multiple chronic conditions, medication overload, inappropriate medication use, financial burdens, and low health literacy frequently result in adverse drug events (ADEs) causing serious harm in the geriatric population. Students were educated specifically on issues surrounding medication administration in the older adults. During apartment visits, students performed medication reviews to identify medication discrepancies, issues surrounding access, polypharmacy, improper medication use, lack of knowledge regarding medications, and use of high-risk medications. The updated American Geriatric Society Beers Criteria was used to identify possible high-risk medications in the older age group. Residents were provided individualized medication education to promote adherence and reduce the risk of ADEs. Medications were organized to promote accurate administration and reduce likelihood of duplication. The PharmD faculty member provided pharmacologic consultation during weekly interprofessional rounds and made recommendations to improve management and reduce ADEs. The social work staff assisted with follow up phone calls to provider offices to facilitate medication optimization.

### 3.2.6 | Mobility

Mobility issues in the older age group may result in functional impairment and increase the potential for falls, with or without injury. Falls are the leading cause of fatal and nonfatal injury in older adults. Each resident was screened for fall risk by ascertaining if they had fallen in the past year or were afraid of falling. If yes, the resident was screened using the Timed Up and Go (TUG), part of the CDC STEADI toolkit. Other factors relating to fall risk were assessed, including orthostatic hypotension, diabetic management, medications affecting balance, or gait, musculoskeletal issues, and environmental safety concerns. Interventions to reduce risk of falls were developed collaboratively with the residents, using materials from the STEADI toolkit. When appropriate, prescriptions were obtained for physical therapy.

### 3.2.7 | Interprofessional teamwork

Students presented their resident cases during weekly interprofessional conferences to promote team collaboration, communication and planning. Students, social service staff, and faculty attended the conference. Students used a case presentation template that was structured using the 4Ms framework. Using the 4Ms framework for interprofessional communication helped all team members plan care in a more organized fashion and also provided necessary structure for student learning. The team conferencing provided a forum for problem-solving, interprofessional education, and learning among disciplines.

To enhance learning and promote critical thinking during the experience, students completed weekly semi-structured reflections based on recommendations for service-learning settings. Students were encouraged to reflect on experiences and insights relating to themselves, their values and attitudes.

### 4 | RESULTS

A total of 15 students participated in the 4Ms interprofessional clinical experience from September 2019 to March 2020. In the spring of 2020, the clinical experience was terminated early due to the COVID-19 pandemic. Student competencies were evaluated through direct observation by faculty, participation in the interprofessional conferences, and end-of-semester self-reported changes in knowledge and achievement of learning objectives. Students demonstrated competence conducting cognition and depression screening, medication review, and functional and fall risk assessments using standardized screening instruments.

Following a 7-week experience, 1 day per week, students completed a confidential survey. Students evaluated how well the clinical experience met each learning objective (on a five-point scale from "Did not meet at all" to "Completely met") (Table 1). Mean scores for achievement of learning objectives ranged from 4.3 to 4.8.

<table>
<thead>
<tr>
<th>How well did the clinical experience meet the following objectives?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not meet at all</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Assessment: Assess healthcare needs of vulnerable residents using a screening tool.</td>
</tr>
<tr>
<td>Mentation: Screen for dementia and depression using evidence-based tools (MiniCog, PHQ-2)</td>
</tr>
<tr>
<td>Mobility: Assess mobility and implement evidence-based strategies to prevent fall-related injuries.</td>
</tr>
<tr>
<td>Medications: Screen residents for presence of age-related high-risk meds, med discrepancies, and recommend changes to reduce med-related events.</td>
</tr>
<tr>
<td>IP teamwork: Communicate with health professional team members to share patient-centered and population-focused problem solving.</td>
</tr>
<tr>
<td>Health promotion: Identify and implement evidence-based strategies for health promotion and behavior change for vulnerable residents</td>
</tr>
</tbody>
</table>
Students also assessed their knowledge level in five content areas before and after the experience in a retrospective pretest–posttest survey (on a five-point scale from novice to expert) (Table 2). Positive increases in the level of knowledge were reported by students for all five content areas (culture and health care, social determinants of health, advocacy and collaboration, integrating patient values in health care decisions, and importance of interprofessional team-based approach).

All students were asked to reflect on the experience in open-ended written comments at the end of the evaluation. Student observations included reflections about person-centered care in the home. For example, one student wrote, “I realized that recommending to remove a rug to prevent falls isn’t that simple when it is someone’s home and a cherished possession.” Students expressed a better understanding of the barriers older adults face when managing chronic health problems in the community, and the importance of providing comprehensive care across the continuum. One student stated, “I realize now that you can’t just hand out a bunch of discharge instructions or a medication list and expect patients to manage their health at home.” Another student mentioned, “I will be more patient and a better nurse in the hospital because I understand the bigger picture now.” Students appreciated the complexity of healthcare issues, the effects of social determinants of health and their effect on vulnerable members of the community. One student commented, “Actually seeing the impact of poverty on health made it more real for me.” When asked what students liked best, they especially enjoyed carrying a caseload of clients, working in a team with social workers, and establishing rapport with a group of individuals. “We never get to see the same clients in the hospital. This experience made me feel like a real nurse. I feel like I made a difference,” expressed one student. Students valued the opportunity to partner and learn from the social workers. “I learned what social workers do and how they advocate for residents in the community,” stated one student. Another student commented about the interprofessional teamwork when she stated, “We learned from each other.”

### 5 | CONCLUSION OR NEXT STEPS

In the fall 2020, the Rutgers School of Nursing-Camden will continue to participate in the NJGWEP and expand the work to include components related to the 2020 Coronavirus Aid, Relief, and Economic Security Act, P.L. 116-136 (CARES Act) Supplemental Funding for Health Workforce Modernization. The funding will help establish a tele-education network to connect the School of Nursing with the Institute for Successful Aging, Northgate II, Fairshare Support Services, and other community partners directly with the older adults with multiple comorbidities to address their health care needs in relation to COVID-19. Students will also gain experience with the use of telehealth and related technologies in provision of assessment and care in the new environment created by the coronavirus pandemic. Resident-specific outcome data and other quality and outcome measures collected as related to the NJGWEP grant will follow in additional publications.

The academic-practice partnership between the School of Nursing, Fairshare Support Services, and the NJ Institute for Successful Aging was an established and valuable interprofessional partnership before the fall 2019. However, the incorporation of the 4Ms framework provided the context to develop an evidence-based clinical experience to improve health outcomes for vulnerable older residents in an affordable housing, inner city apartment complex. Students demonstrated competence conducting geriatric-based screenings and interventions. Students rated the learning experience positively. Open-ended comments denoted important learning about care across the continuum and barriers to health for older adults in low socioeconomic states.

Using the 4Ms framework as a strategy to teach geriatric-based competencies in the undergraduate nursing population within an interprofessional community clinical experience has been positive to date. This project was designed as a curricular quality improvement in one School of Nursing. Evaluation findings may not be generalizable to other programs. Further study is recommended in additional settings to evaluate the utility of the framework as an effective learning strategy.

### ACKNOWLEDGMENT

The authors would like to acknowledge Marilyn Mock MSW, Melonie Handberry MSW, Fairshare Support Services, and the NJGWEP team at the NJ Institute for Successful Aging, Rowan School of Osteopathic Medicine for their contributions to student learning and interprofessional collaboration. This project is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under the Geriatrics...
The authors declare there are no conflict of interests.

CONFLICT OF INTERESTS

The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement by HRSA, HHS or the U.S. Government.

REFERENCES


