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## Research Article

# Geriatric House Calls: A Geriatrician-Led Clinical Experience in Sub-Saharan Africa

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### ABSTRACT

Home-based medical care is increasingly being utilized in many developed countries and is crucial for many frail older adults with significant functional and/or cognitive issues. With progressively longer life spans worldwide, developing countries are beginning to grapple with medical care issues of frail older adults. In our report, we describe a geriatrician - led house calls clinical experience in Nigeria and explore the management strategies, as well as challenges in providing much needed medical care for older African adults, especially those who are frail and homebound.

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## Introduction

The population of the world is collectively aging. This includes countries in the developed world as well as most developing countries in Africa. It is estimated that by 2050, 80% of the world's population over 60 years old, will reside in developing countries [1]. This is in spite of a relatively lower average life expectancy in African countries. In sub-Saharan African countries like Nigeria, the most populous in Africa and the seventh most populous country in the world, the average life expectancy is 53 years in males and 54.6 years in females compared to the average life expectancy in the United States of 76 years in males and 81 year in females [1-3]. African countries are now having to face the challenges of caring for their aging population. In traditional African cultures, older adults are held in utmost esteem and have historically been solely cared for by family members.

This is becoming increasingly difficult and has been progressively changing over the last several decades because of significant poverty in many African societies and emigration of youth in their productive years, from these developing countries to other countries in search of better

economic and educational opportunities. As a result, health care systems in many parts of Africa are inadequate with minimal readiness for providing geriatric friendly public health services [4]. In many African countries, the concept of nursing home or facility based long term care for older adults is still regarded as 'foreign' and alien to most cultures. In Nigeria, for instance, the few nursing homes or long term care facilities that exist are mainly for the very poor, those with no relatives or those with significant psychiatric conditions. These facilities often offer minimal medical care and supportive care services [5].

Home-based medical care is increasingly being utilized in the care of older frail adults in many developed countries [6]. In developing countries, home-based medical care have been developed for different populations (mostly pediatric), different medical conditions such as human immunodeficiency virus (HIV), tuberculosis and are often nurse-led or related to public health initiatives [7, 8]. Our case series report focuses on a geriatrician – led house calls clinical experience in Nigeria and explores the management strategies, as well as challenges in providing crucially needed medical care for many older African adults, especially those who are the most frail and homebound.

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### Case 1

Mr. O is a 78 year old man seen by his geriatrician for an initial house call visit in Nigeria, as he was too weak to come to the geriatric clinic. His main complaints are poor appetite, bitter taste in mouth with consequent weight loss of about 10lbs (7% of total weight) in the preceding 6 months. No nausea or vomiting but has associated constipation. Medical history is notable for glaucoma and his only medication is latanoprost eye drop. He is independent of most of his basic activities of daily living with recent decline in his mobility, now walking with walker. No prior history of falls, urinary incontinence, sensory or memory impairment.

Physical examination is significant for mild cachexia, oral candidiasis, poor oral hygiene and rales in the lower lobe of the right lung. Cardiac, musculoskeletal and neurological examinations are normal. Laboratory tests reveal elevated white blood count: 12.3 (normal range: 4 -11 k/uL) and C-reactive protein. Serum electrolytes, kidney, thyroid and liver function were normal. Urine culture is negative for a urinary tract infection. Tumor markers (CEA, CA19-9) and prostate specific antigen are also normal. He is treated with empiric antibiotics for presumptive pneumonia, oral nystatin and nutritional support with small frequent meals and oral protein supplementation. He is managed at home with a home health agency team of three registered nurses who provide 24-hour care with some family support, a physical therapist, with periodic home visits from his geriatrician, twice a week and as needed over a 3-week period.

Over the next several weeks, he becomes weaker, oral intake continued to decline with resultant delirium due to dehydration and electrolyte derangement. He is hydrated intravenously at home with no improvement and subsequently admitted to the hospital. Work up showed left sided subdural collection with mass effect and midline shift on CT brain. A left renal mass was noted on abdominal ultrasound. He had an urgent open craniotomy with drainage of subdural collection. Histology suggestive of adenocarcinoma, likely due to metastases from the colon. He also developed progressive visual loss over the course of hospital stay. His family then opted to have him transferred to a hospital in England for further management, where he was ultimately transitioned to palliative care and died after about a month.

### Case 2

Mr. O, an 89 year old retired administrator with a past medical history of essential hypertension is evaluated at home by his geriatrician a few days after discharge following a 35-day hospital stay. He is status post right femur fracture from a ground level fall about 2 months prior. He had open reduction and internal fixation (ORIF) complicated by post-operative sepsis and acute respiratory distress syndrome (ARDS), requiring admission to the intensive care unit. His hospital stay was also complicated by delirium and severe lower gastrointestinal bleeding, due to a combination of angio-dysplasia noted on colonoscopy and antiplatelet/anticoagulation medications (rivaroxaban and diclofenac, a non-steroidal anti-inflammatory agent). As a result of the extensive bleeding, he had total colectomy with ileostomy. He initially received total parenteral nutrition after bowel surgery and then slowly started on

oral nutrition with protein supplementation for poor appetite and oral intake. He currently ambulates with aid of a walker.

Current medications are acetaminophen, ferrous sulphate and biotin. Physical examination is significant for a frail older man with mild pedal edema and poor oral hygiene. Cardiopulmonary examination revealed minimal bibasilar crepitus. Abdominal examination is notable for a right ileostomy pouch in situ draining feculent material. He is managed by home health team consisting of his geriatrician, registered nurse and physical therapist with family support to provide 24-hour/day care. The care mainly consisted of ensuring adequate nutrition and hydration, ileostomy care, physical therapy and assistance with basic activities of daily living. He also requires intermittent intravenous hydration due to dehydration from poor oral intake. Electrolytes are monitored and all clinical supplies required for home health care are purchased by the family members including a pressure relief mattress, intravenous cannulae, syringes and gloves.

Three weeks later, Mr. O sustained a right ischemic stroke with left hemiparesis and had to be readmitted to the hospital. He resumed home health care on discharge home after a 2-week hospital stay. As a result of his markedly reduced mobility, he also resumed intensive physical therapy with two sessions daily. He also continues with 24-hour/day care with home health nurses and family caregiver support. His geriatrician monitors his progress through weekly house calls and supervises all members of the home health team. His muscle strength improves and now he can stand using a walker but not able to walk yet. His nutritional intake is also better with protein supplements. He still requires close supervision to ensure adequate hydration.

### Case 3

Ms. H is a 56 year old woman with a past medical history of essential hypertension and mixed (Alzheimer's/vascular) dementia is evaluated at home by her geriatrician. Medications include losartan, amlodipine, aspirin and herbal supplements including ginkgo biloba and locally made herbal preparations. She is able to walk without any gait aids and is able to feed herself, though very slowly, so often times requires assistance. She is otherwise dependent on all other basic activities of daily living, including toileting. Her physical examination is notable for a mini-mental status examination (MMSE) score of 10/30. Work up to exclude potential reversible causes was negative. She is started on donepezil and home health nurses work with her husband to provide 24-hour/day care with supervision from her geriatrician who visits monthly and as needed.

Over the past year, she has continued with home health services and regular house calls from her geriatrician. Memantine was recently added to her regimen. Her functional status is stable, and she still walks without any gait aids. She is now completely incontinent of both bowel and bladder. Her verbal function has also decreased but she is able to answer simple questions and obey one step command. She had a 20-pound weight loss over a 2 -3 month period, which stabilized with frequent small meals and protein supplementation.

## Management Strategies

Our house calls clinical experience utilizes a team based approach with the nursing staff, physical therapists and family members working closely with the geriatrician and other medical specialties to provide crucially needed medical care and social support to frail older adults. The clinical care of these vulnerable older adults was optimized with the following management strategies: appropriate clinical structure and multidisciplinary approach; management of multiple co-morbidities and psychosocial care with strong family support.

### I Appropriate Clinical Structure and Multidisciplinary Approach

Patients for the house calls program are mainly identified through their mobility needs and difficulty in accessing the outpatient clinic. Some are also enrolled based on family requests. As with most of the medical care in sub-Saharan African and Nigeria, in particular, the cost of medical care is borne by patients and their families. Patients are preferably enrolled based on similar geographic location but those at different locations are also enrolled with an additional transportation cost.

Patient care is usually coordinated in collaboration with local home health care agencies which are privately owned and provide nursing staff, nursing aides, physical and occupational therapists. In addition, physical therapists from the local hospitals are also utilized in providing care in the patients' homes. An interprofessional comprehensive clinical management plan is formulated after a thorough assessment and is based on the patients' medical and physical needs. Clinical nursing care may range from a few hours to 24 hours per day. Medications and clinical supplies including intravenous infusion supplies, wound dressing materials are usually provided by home health agency, as part of their overall fee for service. Physical and occupational therapies tend to be about 3 sessions per week and are often limited by cost. Geriatrician house call visits are also scheduled based on the patients' medical needs ranging from weekly visits to visits every 2 - 3 months, with phone coverage 24 hours/day, 7 days per week. In specific situations in which the input of other medical specialties is required such as neurology, in our second patient case with a stroke, house calls with these specialties could also be arranged.

### II Management of Co-Morbidities

The management of multiple co-morbidities in this very frail older population is also an important hallmark of home-based clinical care. With the increasing average life expectancy in Africa and outcome improvement in the treatment of infectious diseases such as HIV, tuberculosis and malaria, the incidence of cardiovascular and renal diseases is increasing [9]. In addition, older frail adults often develop geriatric-related syndromes such as falls, sensory impairments (hearing and vision loss), malnutrition, urinary and fecal incontinence and cognitive impairment (delirium and dementia), with all the resultant morbidity associated with these conditions [10]. Appropriate treatment of infectious diseases, as well as chronic non-infectious diseases and geriatric related syndromes is crucial to the functional and cognitive health, as well as the well-being of these older patients. Often times, the treatment of these conditions will require significant care coordination

and input from multiple medical specialties as in our first patient who ultimately required CT imaging and neurosurgery. This underscores the importance of maintaining good communication with all medical specialties involved in the patients' care and ensuring that the clinicians understand the patients' functional and cognitive limitations as their medical care is being optimally and appropriately managed.

### III Psychosocial Care with Strong Family Support

The psychosocial aspect of homebound older patient's care in sub-Saharan Africa is a key component of house calls and this is mostly done by unpaid family caregivers and in some cases, by paid caregivers with the cost borne privately by the patient or family. This is similar to clinical care experiences in many homebound patients in developed countries like the United States. Studies in both developed and developing countries indicate significant caregiver burden when caring for older chronically ill adults [11, 12]. In a recent study of caregivers of older adults in Nigeria, the prevalence of severe caregiver burden was about 59%, with resultant poor health-related quality of life [12].

In addition, caregiver burden confers an increased mortality risk and poor caregiver health compared to non-caregivers [11, 12]. Since the psychosocial and caregiver support are crucial to the care of these vulnerable older adults and likely correlates with patient outcomes, it is important that clinicians assess for the presence of caregiver burden or risk of abuse or neglect during house calls, while providing caregiver counseling and support. Geriatricians also counsel nursing staff and family caregivers on how to optimally provide care to older adults, particularly those with cognitive impairment. For instance, using a non-confrontational approach, encouraging patient autonomy for decision making, when appropriate. In many situations, caregivers are also counseled on making time for themselves as a way to promote self-health and prevent caregiver burn-out.

### Challenges

The main challenges of providing home care to these vulnerable patients in sub-Saharan Africa center around the cost of medical care as these costs are borne by the patient and their families. This is usually well beyond the reach of the average household, making this type of medical care unattainable by most and mainly limited to those with higher socio-economic status. In addition, house calls are typically offered to those in main cities and less so, in rural areas mainly due to accessibility difficulties, as well as poverty. This further limits access to this crucial medical care that is needed by many frail older adults.

Our house calls patients also tend to be in the advanced stages of their disease processes, often have complicated clinical courses and require comprehensive medical care. Often times, our patients have not had prior preventative medical care such as cancer screening, blood pressure or diabetes screening; and are diagnosed at later stages of these disease processes with poorer prognosis. All of which result in poor outcomes as seen with our clinical cases. There are several reasons for this, one of which is public awareness and health literacy. Cost and access to appropriate medical care are also factors. There are also logistical issues that arise with home-based medical care such as adequate provision for

accommodation and safety of staff while in the home, particularly if it is for extended periods of time such as 24 hours per day.

## Discussion

House calls provide an avenue in which to provide critically needed interprofessional clinical care for frail older adults who would otherwise not have access to medical care due to difficulties with mobility and transportation. It requires mobilization of a lot of resources and manpower; and the cost of such a program falls squarely on the patient and their families. In developing countries where resources are limited and poverty is common, this unfortunately limits the applicability of such a program to a wider patient population. As such, our program is mainly limited to frail older adults who live in the main cities and are of middle to upper socioeconomic status. Wider application of this crucially needed service for older frail adults would require government funding for universal health coverage to include coverage for all levels of care including long term care. Funding from private sources or foundational grants, as has been done in the home care management of communicable diseases such as HIV and tuberculosis would also be crucially important to bring about adequate medical care that this subsection of our population needs.

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