



Chronic diseases and longevity: future challenges

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Abstract

This text proposes the design of care models that are more effective and appropriate for the characteristics of the aged population. To this end, the article expounds on the need for emphasis on low-complexity care that focuses on coordination, prevention and client monitoring to reduce wastefulness, offer better quality care and lower costs. Furthermore, the epidemiological assessment instruments used and the detailed routine of all health professionals are presented. Thus, it is endeavoured to deliver the best care for the aged and, within an estimated timeframe of around 20 years, render this sustainable, transforming not only care for this segment of users, but for the health system as a whole.

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Care Models. Instruments.
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INTRODUCTION

Can healthy aging with quality of life be achieved in Brazil? The aim of the present article is to address this question via a resolutive care model offering excellent cost-benefit ratio, congruent with the latest solutions in integrated care for the aged population.

The model presented seeks to rethink in a completely innovative fashion, the care which should be provided to this contingent of the population, the importance of health care, promotion and prevention, along with the technology for use in consultations, monitoring and information, i.e., in the “coordination of novel care approaches”.

The increase in life expectancy of the Brazilian population represents a major advancement. Live longer – grow old – this has become a reality in this decade and is set to become even more so in the years to come. However, citizens having the opportunity to live these extra years to the full while maintaining functional capacity, health and quality of life, is also an important part of this advance. In recent years, a number of institutions and their research teams have investigated changes in the model of health service provision. Clearly, there is an imminent need for such a shift.

The health care of the older population can be restructured in the sector toward providing better care outcomes at a lower cost. For this shift to come about, all actors in the sector must take a lead in achieving the necessary changes and be open to innovation. In many instances, innovating may merely require returning to simpler care practices and recovering values lost amid the current national health system.

In today’s reality, living into one’s 80s, 90s or beyond has become relatively commonplace. Nevertheless, there are deep concerns over the current care model, since these additional years of life should not be marked by suffering, pain and high health-related costs.

This text outlines the need for emphasis on low-complexity care, i.e., a focus on the coordination, prevention and monitoring of clients in an effort

to cut down on wastefulness, toward providing high quality, low-cost care. The instruments used for epidemiological assessment are also described, along with a detailed breakdown of the healthcare team routine.

Incorporating the knowledge, theory and application of these instruments into daily clinical routine is pivotal for this care logic to expand and offer improved care to the older population, representing the fastest growing age group worldwide. Failure to change the care model for older adults could spell dire consequences for the future.

Therefore, the primary objective of this article is to design more effective care models tailored to the specific characteristics of the aged population. Re-examining healthcare treatment is critical, where one thing is certain, the care delivered in the future will have to be far more effective than currently¹.

All of the demographic predictions about growth of the older population made in the 1980s have materialized. If anything, these estimates have erred toward underestimating the trends, since figures are even greater than initially envisaged¹⁻³. Increased longevity is a major triumph for mankind.

Surviving into late-life used to be a rare privilege that, today, has become something of a norm in Brazil and likewise among many developing countries.

Drawing on the definition of active aging, 3 key pillars of this paradigm emerge: health, participation and security^{4,5}. The health pillar transcends the purely physical realm – a fact backed by evidence from a host of scientific fields – to encompass the area of mental health and social wellbeing, all recommended targets of public policy interventions.

DEVELOPMENT

In Brazil, the shift in the age breakdown, with a proportionally larger older population, is a relatively recent phenomenon. The Brazilian population has grown markedly over the past 70 years. Moreover, the increase in the aged population has outstripped that of other countries.

The statistics show that, in 1950, the total Brazilian population numbered 54 million, rising to 213 in 2020. According to projections, the population is set to reach 229 million by 2050, and subsequently decline to 181 million in 2100. The absolute growth was a factor of 3.3 within the space of 150 years (lower than the 4.3-fold increase in the global population)⁶. While the growth in the Brazilian population as a whole was high, the increase in the older age stratum exceeded the global average.

Brazil must take on the task of ensuring quality of life for its senior citizens who, as per the majority of Brazilians, have low education and poor social protection. Health-wise, this group has a high prevalence of multiple chronic diseases⁷, which require on-going care⁸ placing an economic burden on society⁹ due to the growing demand for health services. Aged patients, compared with other age groups, tend to have longer, more frequent, hospital stays. This situation has major economic, welfare and social repercussions.

This situation calls for an innovative quality model to replace the current out-dated system which will can only serve to exacerbate the poor care and health crisis for older patients, the age strata associated with the greatest demand and cost with respect to healthcare.

The demographic transition and improved social and economic indicators in Brazil, relative to previous decades, has led to growth in the contingent of older adults and placed a greater financial pressure on public and private healthcare systems. Expansion in this stratum of the population is accompanied by an increase in chronic diseases and associated costs¹⁰; an upshot of this growth is a rise in demand for health services which, in turn, creates a shortage and/or restriction in resources. Compared to younger individuals, hospital admission is more frequent and hospital stays longer in the older age group, given than diseases affecting these individuals are predominantly chronic and multiple, i.e., require constant monitoring and permanent care¹¹.

Evidence has shown that most public-health problems that affect the population, including both communicable and non-communicable diseases, are in fact preventable.

A shortcoming of most care models is that they are disease-centred. Sadly, preventive actions are still regarded as an overload of procedures and additional costs. However, this approach should be recognized as a strategy which, over the medium-to-long term, can reduce admissions and other much higher-cost procedures¹².

All evidence points to the fact that biomedicine-based health systems will eventually run into sustainability problems. This fact suggests that programs for aged clients should be built based around integrated care, with an active role of health professionals and their team in managing not only the disease but the person, making judicious use of the available technology and of quality information and routine monitoring.

Medical specialists, hospital, drugs, clinical tests and imaging scans are also an integral part of this optimal care model, but the approach should be centred on low-complexity interventions and follow-up of clients by their doctor¹³. A contemporary health care model for the aged should incorporate a combined flow of education actions, avoidable disease prevention, disease onset delay, timely treatment, and rehabilitation of health problems¹⁴. In other words, a line of care for older patients that seeks to be effective and efficient must be underpinned by a coordinated informed network and boast an information technology system designed and tailored to this logic.

Why the gulf between discourse and practice? Before examining the care model proposed in detail, a question must first be addressed. A consensus exists: all stakeholders, bar none, are in favour of this new line of care. Most, however, practice the opposite of what they preach. A gap between the narrative and practice prevails. The time for the novelty and widely acknowledged clichés – even by those who do not practice them – is over. It is laudable to speak of the theoretical frameworks or policies promoting health aging - defined as maintaining functional capacity and autonomy into late-life, as well as quality of life, consistent with the principles and guidelines of the Brazilian National Health System (SUS) focusing on disease prevention. Prominent national and international health bodies

and societies have advocated this concept for many years^{15,16}. However, the next step forward must now be taken¹⁷. At this juncture we must ask ourselves: if everyone is discussing the issue and the solutions have been put forward, why then has the situation stayed the same? Why has theory not become part of routine practice? Why have decision-makers not ushered in change?

In order for the health sector to advance, particularly that of geriatrics/gerontology, one of the issues that must be tackled is distrust, where any proposed changes tend to be initially viewed with caution. Invariably, things which are multifactorial and constructed over many years are hard to transform. Changing a culture is no easy task. Another stumbling block is care quality, another under-valorised aspect. This is a hugely important issue which calls for greater awareness of health professionals and society alike. Some argue it would be too costly to apply tools for rating care, accreditations and certifications, yet qualified services are more cost effective, less wasteful and deliver better care outcomes for patients.

Another point to consider is the generally-held notion that caring for aged patients transcends health. Besides diagnosis and prescription, elements such as social participation, and both physical and mental activities, are crucial to maintain good functioning. However, difficulties remain in accepting these actions as an integral part of care, especially in supplemental health. There is a tendency to separate “social” actions from “curative” actions.

And concerning the model for remunerating health professionals? This group is generally underpaid, so why not adopt performance-related pay? Associating the discussion of outcomes with the form of remuneration is a powerful tool incentivizing doing the right thing. Thus, pay for performance (P4P) or performance-related pay (PRP) have become synonymous for the struggle to align access with care quality. Change in the remuneration model based on this new care framework, focusing on results rather than volume, needs to be a win-win type model, in which all stakeholders benefit, but particularly the patients. In order to put into practice all of the actions needed for healthy aging with quality

of life, care for the aged population needs to be rethought and redesigned, with an emphasis on the older adult and their particularities. This will result in benefits, quality and sustainability, not only for the aged population, but for the Brazilian health system as a whole^{7,18}.

With a clearer of the way forward, it is time to step up and muster concerted efforts that transform theory into a care model offering quality for all, including older population. It is an undesirable situation for the SUS to fragment or for there to be an increase in bankruptcies of private healthcare companies. One thing is starkly clear: for every year that goes by, the cost of health increases while the quality of care declines. Such a system is unsustainable. It is high time, therefore, to put into practice what all advocate but fail to implement.

Health can be defined as a measure of the individual capacity to realize aspirations and satisfy needs, irrespective of age or the presence of diseases⁷. Thus, the need for an efficient cost-effective comprehensive geriatric assessment has become increasingly pressing. The goals of this assessment are to enable early diagnosis of health problems and to plan support services wherever and whenever needed to allow individuals to continue to reside in their homes. Traditional history taking, physical check-up and differential diagnosis are insufficient to provide a comprehensive evaluation of the range of functions needed for daily living of aged individuals¹⁹.

Health systems comprise several points of care that do not work in an integrated fashion. In general, entry into this uncoordinated network typically occurs when the client is at an advanced stage, where the “front door” tends to be the emergency department of the hospital. This model, besides being inadequate and anachronous, has a dire cost-benefit ratio, since it makes intensive use of highly expensive technology. Its failings, however, should not be blamed on the clients, but on the care model itself, which overloads the higher complexity levels due to a lack of care at primary levels. Home-based care may represent an alternative for some cases. Home care should not be seen as a fad but as more modern modality of care¹⁴. However, the advent of the modern hospital is a relatively

recent phenomenon in that, not long ago, care was traditionally administered within the home setting²⁰. A prospective study of disease management²¹ offered to beneficiaries of Medicare (health insurance system for older adults managed by the North-American government) showed that actions failed to reduce expenses²² and that physicians were unhappy with the insurance providers paying the costs of disease management, possibly reducing their income, besides interfering in the doctor-patient relationship.

Disease management programs for aged individuals are even more complex and have a very low cost-benefit ratio, given that treating a disease properly only reduces the rates of morbidity associated with the condition. The best option is to structure models that work in an integrated manner and cater for the whole range of needs²³. If this approach is not taken, then the problem is hard to resolve, because other diseases and their frailties remain. Moreover, resources will not be used rationally²².

Epidemiological information translates to the ability to predict events, allowing early diagnosis (especially for chronic diseases), delaying the onset of these conditions and improving both quality of life and the therapeutic approach. Determining health status of the aged population should consider the overall state of health, i.e., take into account a satisfactory level of functional independence, as opposed to merely the absence of disease. Thus, the notion of functioning can be construed as a paradigm for the health of older adults, representing one of the most important attributes of human aging, since it encompasses the interaction between physical and psycho-cognitive capacity to perform activities of daily living^{14,24}.

Well-being and functioning go hand in hand. They represent the presence of autonomy, individual decision-making ability and control over one's actions, establishing and acting on one's own convictions and independence – the ability to carry out something by one's own means – enabling the individual to take care of themselves and their life. It should be noted, however, that independence and autonomy, although closely related, are separate concepts²⁴. Some people are physically dependent but are perfectly capable of deciding what activities they

wish to engage in. Others, on the other hand, are physically able to perform certain everyday tasks, but not to choose how, when or where to carry out these activities¹⁴. Functional evaluation defines the correct stratification and allocation of the aged patient into the line of care required, and also allows their care behaviour to be predicted. Functional autonomy is an important predictor of health of older adults, but systematically assessing the whole elderly population using long comprehensive scales is far from ideal.

A variety of assessment tools is available for screening risk and organizing entry to the health system, validated and translated into Portuguese. A two-stage approach, dedicating full evaluation only to individuals at high risk, as detected by a process of screening, is more effective and less painstaking. For the first stage of rapid screening, a tool meeting the following criteria should be employed: • simple and safe; short application time and low cost; • accurate for detecting the risk investigated; • validated for use in the population and for the condition being checked³; • acceptable sensitivity and specificity; and • have a well-defined cut-off point.

During the first contact, the PRISMA-7 should be used, developed in Canada for screening²⁰ risk of functional loss in older adults¹¹. Comprising 7 items, a validated, transculturally-adapted version of the scale for use in Brazil indicates the ideal cut-off for the population to be 4 points (4 or more positive responses). The scale requires no special materials, qualification or extensive training and can even be self-administered. Application time is 3 minutes and sociocultural and educational level do not influence comprehension of the questions. The PRISMA-7 has been used systematically at the “front door” to the health system in Canada and by the British Geriatrics Society and Royal College of General Practitioners in the United Kingdom as a screening tool for functional loss and frailty²⁵.

The way forwards is to take the right steps, with focus centred on the most important element in the whole process: the patient²⁶. Care should be organized in an integrated fashion and treatment coordinated throughout the care pathway in a network logic^{25,27}. The model should be based on early identification of risks of frailty of the user. Once

risk has been identified, the priority is to intervene before the onset of illness, thereby reducing the impact of chronic conditions on functioning. The idea is to monitor health, not disease, within a logic of continued follow-up, varying only in terms of level, intensity and intervention scenario²⁸.

It is important to attain better more financially economical care outcomes. This requires everyone involved to understand the need for change and allow themselves to innovate in terms of care delivery, means of remuneration and assessment of the quality of the sector. This will result in benefits, quality and sustainability not only for this population group, but also for Brazilian health as a whole¹³. The effects of this change of model will be felt immediately by users. This transformation of the health system toward sustainability will become evident in the medium-term.

Under this model, the generalist physician or family doctor fully handles 85-95% of their patients, without the need for the intervention of specialists. In addition, this doctor can recruit health professionals with specific backgrounds (Nutrition, Physiotherapy, Speech Therapist etc.), but it is the generalist who recommends them and performs referral²⁹. The British model, the National Health Service (NHS), is centred on the generalist doctor who has a high resolute capacity, called the general practitioner (GP),¹ and a close bond with the patient²¹.

Universal access to these professionals is guaranteed, regardless of income or social level, akin to the SUS³⁰. When registering with a GP, British citizens receive free state medical care at health clinics manned by a team consisting of generalist physicians and nurses. Any treatment needed, if not extremely urgent or due to an accident, will be administered at the local clinic³¹. By contrast, under the North-American model, patients are referred to numerous specialists. These are two wealthy countries with a long tradition in medicine. They operate, however, different systems which provide very different results³².

A recent study involving developed countries conducted by the Organization for Economic Co-operation and Development (OECD), showed the difference in health costs in the US compared with

other wealthy countries with good quality care³³ – where spending on health care is larger than in developing countries^{22,24}. Nevertheless, spending by North-Americans is far greater. In 2017, spending per capita reached US\$ 10,224, or 28% higher than in Switzerland and over double that of the UK. These figures highlight that investing heavily in the treatment of diseases does not suffice. In the United Kingdom, General Practitioners (GPs) are special doctors who earn a bigger salary than specialists and are highly valued by British society. General practitioners are considered the “true doctors”, because they “know everything”. Specialists are generally perceived as being more limited since they only have expertise in a single specialty.

In some countries, accreditation and assessment of quality indicators are obligatory requisites. In Brazil, priority is placed on volume. A policy for incentivizing quality is currently lacking. Patients do not always recognize this as a need, and both public and private health providers regard this as an extra cost. Although these needs are acknowledged by the vast majority of health managers, little is done to improve the situation. Thus, for a well-structured care model¹⁹, some elements cannot be left out³⁵. In Brazil, there is an excess of consultations by specialists, because the current care model follows the North-American logic, promoting fragmentation of care²². Quality care requires greater awareness from health managers and society. Some claim that applying instruments to gauge service quality and introducing accreditations and certifications would prove too costly, but qualified services are more cost-effective, less wasteful and have better care outcomes for patients.

The model proposed here is structured around low intensity levels of care, i.e., lower costs and consisting basically of care delivered by well-trained health professionals and involving epidemiological screening instruments, besides the use of monitoring technologies²⁴. It is paramount, especially in today's world, that information pertaining to clients and their electronic medical records are available on the cloud, accessible from computers or cell phones anytime and anywhere, so that physicians and other health professionals may monitor the client when necessary³⁴.

A concerted effort should be made to ensure that patients remain within the sphere of low intensity levels of care, in a bid to maintain their quality of life and social participation. The target goal is to keep over 90% of older adults within this level of care³⁶. It is argued the portfolio of clients should contain individuals aged 50 or older. Too young? Not exactly. Although not older adults, the epidemiology shows that it is from this age that chronic diseases begin to manifest. And the earlier the structure of a model of education in health and prevention is established, the greater the chances of success. However, defining a cut-off from 55 or 60 years and older is also possible. In Brazil, the status of being aged is defined as occurring from 60 years onwards²⁵.

In this context, teams are based on a duo of professionals: a geriatric doctor and a gerontological nurse. This pair is responsible for the health of a portfolio of around 800 clients. Working weeks are defined at 20 hours for doctors and 25 for nurses. The geriatrician performs clinical management; the nurse, specialized in Gerontology, acts as care manager, monitoring the health status of users and consolidating the role of contact person for support and of strengthening ties with the patient's family. A brief functional evaluation is carried out on the first contact. This serves as a reference baseline for monitoring and as a parameter for following the therapy plan between different points in the system. The care manager is tasked with overseeing the transition of care between services and reevaluates the patient's functional capacity annually, or as and when necessary, encouraging their participation in the process. The care manager's function is key to the model proposed and their involvement mirrors that of navigator in the North-American system, a role created to help guide more frail patients. The function of navigator can be found in some providers/operators in the United States and their role is central in the present proposed framework. According to the American Medical Association, this professional is responsible for managing the care of users throughout the different levels of complexity of the health system, checking whether prescriptions and orientations are being observed²⁶.

Besides the geriatrician and nurse, the multidisciplinary team consists of a physiotherapist,

psychologist, social worker, speech-language therapist, nutritionist, physical educator and workshop leaders (professionals engaged in integrative dynamic activities linked to the program). In the event that user care needs are identified at other levels of care, referrals are made to specialists but always via the generalist doctor. It is important to point out that the model does not retain specialists, with some exceptions, such as when there is a large contingent of frail individuals at a clinic. In this case, six specialized areas related to the model are recommended, because these are part of the annual evaluations, or aiding the generalist doctor, given their specificity, demand and high prevalence. These 6 specialties are in areas in which annual preventive and control exams are conducted, namely: Cardiology, Gynaecology, Uro-proctology, Dermatology, Speech-Language therapy, Ophthalmology and Otorhinolaryngology/ENT. Notably, this last professional need not be a doctor but rather a speech-language therapist. Consultation with the specialists listed is only possible upon request by the patient's GP. Thus, if the client requires care of a given specialist, the other specialties will not be involved. The same reasoning applies to hospital admission. Doctors and nurses are in charge of contacting the physician of the hospital, to be briefed on the case, preferably seeking to ensure best care with shortest hospital stay.

Entry occurs via an action referred to as reception, which takes place in two stages: the first stage is administrative and institutional in nature, when an in-depth presentation of the actions proposed is made, with an emphasis on health promotion and disease prevention. Users thus have a better grasp of the model and the overall dynamic of differential care which will be offered to improve their health and quality of life. Moreover, participation of older users should be encouraged, because this is integral to this healthcare model¹⁸.

In the second stage of reception, the care commences proper. As outlined previously, in order to organize access to the levels of the model, a risk identification screening questionnaire is applied: the PRISMA-7²⁸. After application of this rapid screener, the result will be stored on the information system. The patient then completes the other instruments comprising the functional evaluation. The functional

evaluation entails a 2-step process performed by employing validated reliable instruments adopted by the leading geriatric research groups.

The Clinical-Functional Vulnerability Index-20 (IVCF-20) measures 8 dimensions: age, self-rated health, activities of daily living (3 instrumental and 1 basic ADL), cognitive status, mood/behaviour, mobility (reach, grasp and pinch grip; aerobic/muscle capacity; gait and urinary/faecal continence), communication (vision and hearing) and presence of multiple comorbidities, indicated by poly pathology, polypharmacy and/or recent hospital admission. Each question is scored specifically according to the performance of the subject, for a total of 40 points³⁷. In addition to the questions, several measurements, such as calf circumference, gait speed and weight/body mass index, are included to increase the predictive value of the instrument³⁸. Scoring is categorized into 3 classifications: 0-6 points, the respondent likely has low clinical-functional vulnerability and does not require further assessment or specialist follow-up; 7-14 points, indicates increased risk of vulnerability and the need for more in-depth assessment and attention to identify the appropriate treatment for chronic conditions; ≥ 15 points, 20 deemed high risk of vulnerability or existing frailty requiring more comprehensive assessment, ideally by a team specialized in geriatric-gerontological care with psychosocial support⁵.

The group headed by Professor Edgar Moraes^{7,39}, of the Federal University of Minas Gerais (UFMG), has made the instrument available on-line. The Lachs Scale is applied after the IVCF-20. This probes other areas thereby conferring further robustness to the assessment results. This strategy of using 2 of the best epidemiological instruments aims to improve the reliability of results. The Lachs⁴⁰ Scale comprises 11 items (questions, anthropometric measurements and performance tests) and assesses areas commonly impaired in older adults: visual acuity, hearing, upper and lower limbs, urinary continence, nutrition, cognition and affect, ADLs, home environment and social support. The application of this instrument provides a rapid systematized means of identifying functional domains that should be subsequently assessed in more detail to establish a diagnosis and plan interventions.

The IVCF-20 can be applied by accessing the following link: <https://www.ivcf20.org/>.

- Katz scale – assesses basic activities of daily living⁴¹
- Lawton's scale – assesses instrumental activities^{42,43}
- Mini evaluation of nutrition³⁹
- Tinetti scale – test of balance and gait⁴⁴
- Jaeger Card – assesses visual acuity^{45,46}
- Mini-Mental State Exam (MMSE) by Folstein⁴⁷ and
- Geriatric Depression Scale (GDS) by Yesavage^{41,48}.

In addition to risk identification and screening protocols, other epidemiological instruments are applied annually. The doctor is the manager of follow-up and also of the interprofessional geriatric team, performing more in-depth assessment toward devising an intervention plan. This information will be collected and stored until the end of the care pathway. After this assessment, an individual therapeutic plan is defined that includes regular appointments¹⁸, referral to the multidisciplinary team, community centres, and if applicable, assessment by specialists. A unique longitudinal and multi-professional electronic medical record is then set up and used to store information at all levels of care under the care model, from first contact to end-of-life palliative care. This record should contain information on the patient's clinical history and physical exams, but also includes information on daily routine, family and social support etc. Information from other health professionals such as physiotherapists, nutritionists and psychologists etc. should also be held. Participation of the family, explanation of activities, and epidemiological screenings are other important features of this product.

Information on all procedures is fundamental to allow monitoring of the client⁴. One of main factors for controlling costs of the program is follow up at each level of care. This ensures there are no gaps in patient care when the case is referred to the care network, tertiary care is required or hospital-level

treatment⁴⁸. The transition across care levels is overseen by the management team, which strives to maintain a smooth flow of information, liaising with assisting professionals and seeking to adhere to the principle of management predominantly by the geriatrician-nurse pair. The control of hospitalization takes place via a flow to aid the client, ensuring that the health professionals assigned to the case are aware of the patient's clinical and therapeutic history, as well as the understanding that the individual has frequent follow-up and is set to return to their health team when the clinical condition has been controlled⁴⁹.

In the event of hospitalization, patient monitoring is performed daily on 2 fronts. For the first, the nurse keeps in touch with the family to provide support, clarification or to identify needs (pertaining to patient or family). The other front involves the prevention manager who provides liaison between the outpatient clinic and hospital, performing daily follow-up with the attending hospital physician. In hospitals which have internists, this contact is facilitated and direct. In other hospitals, support is provided by medical auditors or by the care team. Thus, when the older adult needs to be admitted to hospital, this takes place more quickly, avoiding unnecessary procedures or admission to intensive care, ensuring post-discharge transfer²⁵ to low intensity level care settings, without the need to consult several specialists⁵⁰. This all culminates in higher quality care, with a significant cost saving and positive impact on the medical loss ratio⁵¹.

A high-quality information system and lightweight technology is essential in helping to win the confidence of clients. Without using technology, this project cannot go forwards and thus competence is needed to use it to the full. For example: the client, upon reaching the front-door of the health centre, may undergo facial recognition which then automatically brings up their medical record at the reception desk. When receiving the client, the receptionist addresses them by name, enquires after the family and checks the list of medicines they are using. Another important feature is the availability of a cell phone app containing individualized information and reminders for appointments and prescribed actions. The app can, among other functions, request the client to take a photo of their breakfast and

forward this to the nutritionist³³, who can then check whether the meal is balanced, contains adequate dietary fibre etc. Although extremely simple, these actions confer great trust, making the client feel protected and valued from day one. The information system, which commences with registration of the beneficiary, is one of the pillars of the program. Via the system, the entire care journey will be monitored at each level, checking the effectiveness of actions and contributing to decision-making and follow-up. This entails a unique electronic record that is longitudinal and multi-professional, and accompanies the client from initial reception, providing an integral assessment of the individual.

In the proposed model, contact with the client can be increased, since, besides face-to-face meetings, consultations via telemedicine are also incorporated⁵². The aim is not to replace encounters in person, but to introduce flexibility and convenience for scheduling times and days for consultations, given that neither the doctor (or nurse) nor the patient need travel to attend the session. The drive for innovation and use of the latest technology provides closer contact of the health team with the client and family members. With a platform specifically designed for this care, the contact of gerontologists will be increased, enabling numerous individual or group-based actions involving a nutritionist, psychologist or physiotherapist, with counselling and broader contact with clients. Besides the interdisciplinary team which delivers care directly, the model boasts a team of doctors and nurses working virtually. The GerontoLine relationship channel guarantees the users full-time coverage. In passive mode, this receives calls from clients for guidance; in active mode, the team contacts patients on a regular basis keeping them on the care radar. Favouring this interaction, the professionals coordinating care (online) have access to the key information help in each patient's medical history.

GerontoLine differs from call centres, commonplace in traditional health services and which typically operate with poorly-trained staff who have a reputation for overuse of clumsy "gerund phrases"⁵⁵ and offer no support if the client's question or query falls outside the script. With GerontoLine, which is available 24 hours a day, 7 days a week, the

call is answered by trained health professionals who have access to the patient's records and, thus, have everything at their disposal to resolve problems⁵³. Should an ambulance need calling in the middle of the night, this professional handles the whole referral process. In the event of a call during the early hours, this attendant will send a message out to the doctor, explaining the reason for contacting them. Hence, first thing in the morning, the doctor can take the first measures necessary. In other words, the patient and their family members feel protected, since they know that if needed, there is a qualified telephone service available to them. In order for the GerontoLine to work smoothly, a comprehensive patient record is required⁵⁴ which documents not only clinical issues, but also behavioural, social and family aspects, where a global view of client needs are necessary for this model. Another benefit is the epidemiological assessment instruments which are applied at the first consultation, and repeated annually thereafter, or sooner if a special need arises.

The geriatric doctor is responsible for physician actions and metrics:

- managing the health history of their portfolio of clients, devising tailored personalized care plans;
- defining clinical risk of patients in their portfolio and handling their care needs in conjunction with the nurse;
- monitoring hospital admissions;
- assessing and processing need for referral to specialists; and
- coordinating and discussing most challenging clinical cases so as to integrate and align the team regarding the most appropriate care approach for each case.

Based on a standard 20-hour working week, each doctor does four 5-hour shifts per week. During each shift, a total of 12 patients can be seen with consultations lasting 20 minutes each, with 3 "floating" slots (60 mins), used for covering additional task demands, such as cross-checking with the nurse, case review⁵⁵ or contacting hospitalized patients. Thus, the doctor performs around 200

consultations per month, giving a total client portfolio of 800 users seen over a 4-month period.

There is also the novel comprehensive (multi-dimensional) geriatric assessment instrument (CGA)⁵⁶, that prescribes application of the IVCF-20 (Clinical-Functional Vulnerability Index-20) performed by any health professional, including nursing assistants/technicians, community health workers or, alternatively, by patient caregivers. Application time is short, taking 5-10 minutes depending on the evaluator's experience and patient's level of frailty. The questions are directed at the older adult, with responses confirmed by a family member or companion that lives with the respondent or is in a position to vouch for the answers. In cases where the older adult is unable to answer, the caregiver responses are used. The instrument is applicable to any aged person, irrespective of their health status, and in any care setting (outpatient clinic, LTCF, hospital, home, etc.). The instrument contains 20 questions assessing the main health dimensions of older adults. Questions should be sequenced and asked in a systematized fashion. Each question-response carries clinical meaning and, if answered positively, should be followed by advice on the issue flagged.

The frailty risk factor defines the number of consultations for the year. The number of consultations by the doctor varies according to the prior assessment at the time of collection, whereby the number of annual visits shall be defined by level of need, based on results of epidemiological screening. Some visits may be brief, or even via software app, to clear up a specific query for example, where, besides the doctor, the patient is supported by the whole health team. The other gerontologists in the team see clients referred by the doctor-nurse duo for one-on-one or group-based sessions. The client's family members may also be contacted by the gerontologist to broaden support and assistance.

Nurse actions and metrics. The remit of the nurse covers 4 different actions that are integral to the process as a whole:

- brief functional assessment – at patient's first consultation (performed by the nurse), during which the screening tests are applied. Taking

of clinical history and the “bond” between the individual treated and treating commences^{57,58}

- nursing consultation – the frequency of visits will be determined according to the level of frailty, classified as:
 - Risk 1 – appointments scheduled every 4 months;
 - Risk 2 – appointments every 3 months; and
 - Risk 3 – appointments every 2 months.

During consultations, the nurse must:

- assess the meeting of goals set;
- establish new goals, as necessary; and
- screen for needs requiring medical intervention, engage beneficiaries in developing an individualized care plan outlining and addressing their needs and priorities, in addition to ensuring the beneficiary and their family understand their role in promoting care and feel confident to exercise their joint responsibilities.

Concomitantly, the nurse can identify barriers of a psychological, social, financial or environmental nature affecting the ability of the beneficiary to adhere to treatment or promote health, devising a strategy which resolves or attenuates the issue at hand. Also within this remit, the nurse can organize group sessions, or therapeutic groups, bringing patients with the same condition together promoting information dynamics and awareness of health practices. The nurse is also available for unscheduled face-to-face consultation without prior appointment for patients who, via GerontoLine, request assistance and guidance. These interactions are referred to as Brief Nursing Interventions. These are not emergency visits but are aimed, among other objectives, at preventing unnecessary use of emergency services. Given that the majority of complications received by telephone or via call centres are handled virtually or referred¹² to emergency services, the time set aside in the professional’s schedule for this action represents 10% of each work shift.

Lastly, monitoring is aimed chiefly at keeping the patient under the watchful eye of the duo managing

their health. Patients will be contacted more often according to their level of frailty. However, the entire portfolio of clients will be monitored at least once a month. Contact will be made by phone or via the app according to a structured protocol to ensure effective interaction and that the health history and electronic data of beneficiaries are duly updated to optimize access by health teams and beneficiaries alike. Assisting in the monitoring process, the professionals from the service, via web or telephone, perform monitoring and also make themselves available to users for virtual sessions.

Fee for service. The prevailing hegemonic model for payment of health services in many countries, both within public systems and private health plan market, is the fee-for-service (or pay-for-performance) model. This is characterized by stimulation of competition by users and payment for the number of services delivered (volume). There is no use changing the payment model⁵⁹ without also changing the care model and vice-versa, since the two are interdependent. Some of the flaws in the Brazilian health system (especially supplemental services) which largely affect older users are the result of the decades-old model adopted. In order to cater to the new pressing demand from society, alternative models of pay need to be implemented to break the vicious circle of fragmented consultations out of step with the social and health situation of older adults, as well as the ordering of procedures unrelated to the desired outcome³⁶.

Performance-related pay is remuneration based on results attained over a given period. Because technical and behavioural standards required of professionals under this model are high, the payment is intended to compensate for this high level of performance. Fee-for-service has bonus rates as high as 30% on top of base salary for the quarter. Every 3 months, an appraisal of the professional’s performance is carried out based on previously established indicators. Given a total of 4 medical consultations per year should be provided under the program criterion, 1 consultation per quarter for every client in the doctor’s portfolio is expected. Professional diligence and good time-keeping are pre-requisites for awarding bonuses and are fundamental for guaranteeing the number of consultations - a key performance indicator for service

operation. Another eligibility criteria for the points program for bonus awards is proper registration of information for each patient, including any hospital admissions. These stays constitute the main cost factor, where strict control by the team is key to the economic-financial success of any initiative or project.

Another basic principle is the geriatric doctor's ability to resolve cases. According to international studies³¹, generalist physicians can resolve 85-95% of their clientele's clinical issues. Referrals to clinical specialties are the exception. If the doctor refers no more than 15% of the clients from their portfolio within a given quarter, this indicates good case-resolving ability and eligibility for bonus points. The engagement of users of the program by multidisciplinary team and the Community Centre provides a measure of the bond with the client and resolute capacity. Hence, an item was included that rates participation of members of each portfolio in consultations with the team gerontologists and in group activities at the Community Centre, contributing further points toward bonus awards. Medical loss ratio is the main economic-financial indicator for assessing the program, with a commensurately higher weighting attributed to this item, and for which the physician can be awarded up to 2 points on their performance appraisal. The goal is excellence in care provision, so it is only fair to incentivize the professionals as part of the win-win premise. Other means of rewarding performance include granting time off, book purchases and funding post-graduate courses. There is no doubt that performance-related pay models will be introduced in Brazil. Professionals in the health sector should start entertaining this notion more as a question of how this will roll out, as opposed to when or whether this will take place^{28,60}.

Therapy groups are a group-based intervention strategy involving patients who have the same disease. Through discussion circles and interactive presentation, participants have the chance to better understand the disease in questions and clear up doubts, representing a self-preventive action. The duration of these group meetings depends on the subject being addressed. In each shift, 60 minutes are dedicated to this action, convening 5 to 10

participants. Topics discussed are chosen according to the actual needs of the portfolio of clients.

For physiotherapy, enrolment occurs through medical referral with a clinical diagnosis. Physiotherapeutic assessment is done using a structured questionnaire and the Tinetti scale. The aim is to identify musculoskeletal changes which result in functional limitations and to define an adequate treatment program, albeit individual or group-based. The objective of the therapeutic procedures is to improve quality of life, reduce pain and risk of falls, enhance mobility and movement, as well as to treat orthopaedic trauma-related injuries, neurologic complications and rheumatological diseases.

The nutritionist sees patients referred from the geriatrics service. This professional carries out an assessment of the client based on clinical, biochemical, anthropometric and dietary data, examining functioning, eating and life habits (past and present), sensory deficit, changes in gastrointestinal and behavioural changes, among other aspects with the potential to impair food intake and, consequently, nutritional status. Information on family organization and care, income, and place of residence is also collected. At the first consultation, an in-depth dietary anamnesis is performed to corroborate the other information contained in the patient's medical record.

Workshop leader is the term typically used to refer to the instructors of activities performed daily within the setting of the Community Centre. These professionals are gerontologists specialized in their field of practice. A schedule of weekly activities is offered to the clients, who can choose those which interest them most. Clients can take part in more than one activity, depending on demand.

Assessment of activities of daily living (bathing, toileting, transferring, continence and feeding), instrumental ADLs (using the telephone, shopping, preparing meals, handling medications and finances) and mobility (balance, gait speed and limb strength) can contribute to generate important information for decision-taking, mapping individual protection and risk factors⁶¹.

The medical-health activities of health education can broaden its focus of attention to encompass positive dimensions of health beyond controlling specific diseases⁶². Screening of hearing/vision, and help in management of the use of multiple medications (polypharmacy) precede the detection of problems, contributing to care. Health habits (protective factors) include balanced diet, regular physical exercise, stimulating social interaction, occupational activity and well-being actions in the field of nutrition (cuisine for diabetes and osteoporosis, for example)⁴⁵.

Community centres. With the steady growth in the older population, some education programs focused on leisure have been developed. The first Brazilian experience of education for middle-aged and older adults was implemented by the Social Service of Commerce (SESC) in the form of community groups. These groups emerged in the 1960s running programs centred around leisure activities. These were welfarist in nature in as far as they did not offer the tools needed for subjects to regain the desired autonomy. From the 1980s, universities began to provide educational programs for the older population and for professionals wishing to study aging-related issues, predominantly offering education, health and leisure^{63,64}. Similar centres had also been set up by health maintenance organizations following the release by the National Agency of Supplemental Health (ANS) of the Care Plan for Older Adults in Supplemental Health. The document sets out incentives to foster a change in the care logic, providing opportunities for health promotion for older adults. A resolution was also published which encourages health plan beneficiaries to take part in active aging programs, in exchange for discounts on their monthly fee⁶¹.

The setting up community centres is in line with the National Health Policy for Older Adults (Regulation no. 2528, of 19th October, 2006). The primary goal is to recuperate, maintain or promote autonomy and independence of older individuals, as well as foster active healthy aging, with encouragement to participate and boost social interaction. The centre offers a range of activities which contribute to healthy aging, development of autonomy and social interaction, strengthening of

family ties, community involvement and prevention of situations of social risk for individuals aged ≥ 60 years⁶⁵. The programs, besides offering physical exercise, feature cognitive training, nutritional programs⁶⁶, telephone services, computing, home security, fall prevention, urinary/faecal continence, immunizations and financial management. Care with mobility of older adults, fall prevention and balance in workshops for psychomotricity, strength training, advice on choice of footwear and podology service, are all important because they help maintain independence⁶⁷.

Aging requires adaptation. New learnings serve as a resource for maintaining functioning and flexibility of older adults⁶⁸. Art, cultural and recreational activities are traditionally associated with community centres for older adults and represent important sources of pleasure: general knowledge, languages, information technology, composing texts and reading, patchwork art, ballroom dancing, music, card games, dominoes, chess, meditation and sightseeing trips. As a tool for planning aging, there is the Time Trade-Off questionnaire, which allows a negotiation between the health professional and older individual, considering risk and pleasure. Many retirees rejoin the job market on a regular or sporadic basis, whether for pleasure or due to necessity, topping up income and stimulating social contact.

In the USA, many dedicate time to voluntary projects. Community centres can provide legal aid services, a caregiver agency and help for the housebound (support for ADLs, remote assistance and meal deliveries etc.). To this end, investment in courses for training caregivers and in communication in the care network are essential. Also, regularly frequenting workshops allows the aged person to experience a routine, which also benefits the caregiver who is freed up to engage in other activities. An annual or six-month "contract" for older adults to attend workshops, as they see fit and subject to the availability of coordinators, facilitates management. The centres can also provide a forum for discussion of issues affecting the older individual.

Aging and end-of-life warrant focus. A practical, light-hearted guide can be devised addressing frequently asked questions in relation to aging

(e.g., “what is happening to me?”). Philosophy and religion can contribute to reflection on aging and death. According to Plato, in Ancient Greece, to philosophize was akin to learning how to die. An idealist, he believed in life after death, regarded this as a passage, a liberation of the soul. For materialists, however, such as Epicurus, life was finite, making it even more valuable. One cannot live the same way when believing in such different conceptions of death⁶⁹. End-of-life, palliative care and the way we culturally cope with this stage of life were examined in a previous study²⁶. Would it be feasible to prepare a practical, yet sensitive, guide presenting some ideas about death? Psychology, based on a discussion about ties, can help toward this task. Letting go of perfect hair colour, eyesight and hearing, letting go of power and memory; allowing decline, accepting the “exoskeleton” (prostheses, hearing aids, glasses, implants.); finding solutions, transforming and refining. Dealing with the fears as a group is fruitful, but older adults are charged with the task of letting go, experiencing loss, saying farewell. Human loneliness is a fact and a necessary one.

However, the Community Centre can help to reflect on the meaning of life, every life, by cultivating individual stories in accounts enriched with photos, scenes from films, songs, food recipes, sharing meals etc. The human journey throughout the life span is a cultural construct that is experienced in a singular fashion. Each phase determines and predicts the possibilities of the next: we age as we live.

Flexibility and resilience (ability to cope with events) differs from person to person. The experience of ageing is both heterogeneous and multidimensional, thus calling for singularity also in care plans⁷⁰. When dealing with minor stressor events in daily life, we draw on personal resources, including social resources. The importance of solidarity and sharing experiences is relevant for older adults and those around them. The quality or functioning of social support is more important for adaptation of older adults than the number of people in the network or the frequency of contact⁷¹. Indeed, the association between social support and self-care supports this notion³². It is through this goal of valorising and respecting old age, fostering an effective embracing

approach, that Community Centres have found their place based on the premise that whoever works with the perspective of respecting the needs of aged individuals respects their own future.

Amid the need to devise multiple support strategies for those needing protection and care, a question emerges: who is charged with caring for children and older adults? In order to answer this question, parallels must be drawn between these ages. In the line of care during the human life cycle, childhood and old age share similarities. Young children, people with chronic diseases and aged individuals – in fact, all those with limited autonomy and independence – require special care. Public entities, such as crèches and community centres, can add to the options of support and monitoring, intergenerational care approaches and broaden patterns of social integration. Expansion of support networks and of resources to deal with limitations enriches the life experience.

Many families are tasked with looking after children and old people. With the advent of pensions in the 20th century, these families began sharing this responsibility with companies and the state. The building of care networks represents a considerable relief for families, increasing their chances of meeting the challenge of their responsibilities. However, power exists in all human relationships. How can others be empowered while avoiding a relationship of guardianship? How can a situation be avoided whereby caring becomes an act of domination? It is paramount to manage the realm of power present in all relationships carefully and to reject strategies of domination. Relationships based on dialogue, a person-centred approach, negotiation, and co-responsibility make all the difference. It is important to discuss the question of the quality of the caregiver/care recipient relationship, as well as the possibilities of transforming the relationships of power. At community centres, studies recommend the use of measures of quality of life based on self-rating by the users: “how would you rate today?”. This approach boosts self-esteem, instils a sense of governability and contributes to the devising of a personalized care plan every day⁶⁴.

Such centres can provide the incentive for older adults to go out regularly and offer the opportunity of social contact. Community centres can also stimulate the formation of a communication network centred around care, forging a relationship of trust between the older adult, their family members and professionals from the institution. The existence of shared spaces to exchange information and experiences, as well as everyday informal interactions, help bring interlocutors together. In the care network, the role of different actors should be discussed and negotiated on an on-going basis, given their needs and possibilities also undergo change. To this end, forums of communication, as well as groups for reflection and conversation circles, reaffirm the importance of collective construction (older adults, caregivers and professionals) of the daily routine. Workshop leaders should be trained and integrated based on the premises of accompanying human aging.

In the Berlin Aging Study⁷², an extensive interdisciplinary study involving 516 randomly selected older adults aged 70-100 years conducted in the city of Berlin, Germany between 1990 and 1993, different variables were analysed, including medical (functional capacity, risk profile, reference biological values), sociology and social policy (life history and generational dynamic, family structure and dynamic, economic situation and social security, social resources and social participation), and also psychology parameters. In community centres, cohort studies can contribute to the knowledge and organization of care of the group of older users.

In the USA, there are cohorts of older adults who frequent community centres during the course of aging. The epidemiologic information obtained enables health to be monitored and problems detected early or avoided, with the goal of extending the healthy life of older adults^{28,58}. At these centres, multiple dimensions of care can be observed through leisure-time and instrumental activities. Programs for health promotion and disease prevention are run within Brazil and worldwide to raise awareness on health care of the older population. These initiatives provide a basis for important debates⁷¹.

The field of public health encompasses access to information, risk protection factors, early

intervention, triage, screening, early detection, comprehensive geriatric assessment, and functional, social (networks) and emotional (ties) assessment. The older age group is increasing and growing older, baby-boomers are reaching the “third age”. Life expectancy continues to rise. This is accompanied by a growth in the care technology pertaining to this stage of life, which can now span 40 years. Community centres need to both increase in number and recognition. Solutions are mixed: individual and singular, but also collective.

For a long period, the crèche institution evoked a certain distrust, being associated with an orphanage, a place where children were abandoned⁶⁴. Institutions which care for older adults for some hours of the day, such as community centres may also conjure connotations of old people’s homes, nowadays referred to as long-term care facilities, and sometimes identified as places where elderly are left and abandoned. Today, there is prevailing consensus on the importance of socialization of young children. Similarly, the important role of community centres in preventing social isolation of older adults is clear. There is a tendency for older individuals to have fewer social contacts and relationships. Frequenting the institution also provides routine and rhythm, conferring structure to their everyday lives. Sociability networks of older adults can occur in different settings: squares, beaches, clubs and religious activities, or in collective entities such as community centers⁶⁴.

Institutions that host older residents, albeit short or long-term, may be part of an external network, forming venues of interaction. Receiving external family members and older adults for activities together with the older residents, provides the interaction and workings of a support network⁵¹. This can be exemplified by a German experience which promoted, within the same building, a community centre running daily activities for older adults, health services (outpatient clinics and day-care hospital), care for housebound individuals and long-term care facility. Preventing disability and recouping autonomy through rehabilitation programs – all or a combination of these forms of care under the same roof – are actions which widen the range of possibilities. He pre-old, young-old and oldest-old all experience

similar situations which often precede different stages of limitations in functioning. Resources and solutions also multiply, in as much as autonomy and independence also change during this phase⁷³.

Care centres may provide a range of care for children, individuals with temporary or permanent disability and older individuals, with or without autonomy and independence. Crèches, when opening their doors to older visitors for activities together with the children, provide interaction and allow affective ties to form between generations⁷⁴. The conveying of values, life stories told in photos, recipes or songs and sharing meals together, for example, value the older generation, conferring a place of importance and acting as a motivator. Fostering ties and the ability to pay attention to one another, is a natural consequence of these shared activities.

Birthplace of the model was developed within the Open University for the Third Age of the University of the State of Rio de Janeiro (UnATI/UERJ)⁸, an institution set up 30 years ago that has gained national recognition as one of the most important health programs for middle-aged and older adults^{36,75}. This initiative has also garnered international awards and been endorsed by the World Health Organization.

CONCLUSION

An innovative quality care system must be built, because the prevailing out-dated care model, will only exacerbate the current poor service and healthcare crisis, particularly for older adults, the age group placing the greatest demand and cost on the system.

In recent years, I have been dedicated to researching the integral care of older adults and refinement of care models. In the capacity of Director of the Open University for the Third Age of the University of the State of Rio de Janeiro (UnATI/UERJ), a centre for studies, education, debates, research and assistance addressing issues inherent to aging, which has contributed to a change in mind set of Brazilian society regarding its attitudes to older generations, and my role as Editor-in-Chief of the *Revista Brasileira de Geriatria e Gerontologia* (RBGG-Brazilian Journal of Geriatrics and Gerontology), beyond mere opinion, I have personally witnessed the desire and need to

consolidate the structuring of the care model for older adults. I often receive comments of praise, yet, these are invariably tempered by the remark: “what you write is so obvious that maybe this is why it’s so hard to put these ideas into practice”. I tend to agree. And it is precisely because I realize these reforms are increasingly imperative with each passing year that, that I am again bringing this matter to the attention of academics and opinion leaders in the health sector, because a further dose of medicine is sorely required which, it is hoped, will be able to remedy the present ailing care model.

Population aging is accompanied by new demands, and challenges the traditional care model. Advancements in technology, science and medicine offer those who embrace the modern tools for maintaining health the chance to enjoy life for longer. The social and economic transformations of the last few decades, their consequent shifts in behaviour of contemporary society – changes in eating habits, increased levels of sedentarism and stress – and growing life expectancy of the population, have contributed to higher rates of chronic diseases, posing a major public health problem. The health needs of the older population cannot be satisfactorily met until it is recognized that this stratum of society requires specific care. This makes overhauling the current health model an imperative. Scrutiny of the national health budget reveals that the vast bulk of funds is dedicated to hospitals and equipment for performing complementary exams. Society and health professionals alike, as a general rule, adhere to a “Hospital-centric” logic, with a mind-set of only treating diseases as opposed to preventing them. A contemporary care model for older adults is a current need and urgent imperative for the decades ahead.

The ideal care model for the older population should be centred on identifying potential risks. Monitoring health instead of disease will direct investment toward early prevention, resulting in a better chance of rehabilitation and reduced impact on functioning. As a response to the older population, more actions focused on health promotion and education, the prevention and delaying of disease and frailty, besides maintenance of independence and autonomy, should be implemented. Lastly, increasing longevity alone does not suffice. It is vital that these

additional years can be lived with quality, dignity and wellbeing. A novel approach to health care that promotes quality of life for users – albeit under the SUS or via the private sector – will entail the use of qualified well-prepared professionals, integrated care, and judicious deployment of information technology. This is the shape that contemporary resolutive models advocated by leading national and international health organs should take. And this is what we wish to see in the not-so-distant future.

Against this backdrop, the goal is to provide older users with the best care. To this end, monitoring

is required, along with a doctor who knows their patient well, working in unison with a health team, not seeking to cure their client but rather stabilize their health so they may live older age to the full!

AUTHORSHIP

Renato Peixoto Veras - responsible for all aspects of the work, ensuring that issues related to the accuracy or integrity of any part of the work

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REFERENCES

1. Veras RP, Ramos LR, Kalache A. Crescimento da população idosa no Brasil: transformações e consequências na sociedade. Rio de Janeiro, Rev. Saúde Pública. Jun. 1987, Rio de Janeiro, 21(3):225-33. <https://doi.org/10.1590/S0034-89101987000300007>
2. Kalache A, Veras RP, Ramos LR. O envelhecimento da população mundial: um desafio novo. Rev. Saúde Pública. 1987. Rio de Janeiro; 21, (3): 200-210. <https://doi.org/10.1590/S0034-89101987000300005>
3. Ramos LR, Veras RP, Kalache A. Envelhecimento populacional: uma realidade brasileira. Rev. Saúde Pública, Rio de Janeiro, v. 21, n. 3, p. 211-224, 1987. <https://doi.org/10.1590/S0034-89101987000300006>
4. Antônio M. Envelhecimento ativo e a indústria da perfeição. Saúde e Sociedade, São Paulo, v. 29, n. 1, p. 1-10, 2020. Available in: <https://doi.org/10.1590/S010412902020190967>. Cited: 2021 Nov. 15.
5. São José J de, Teixeira AN. Envelhecimento Ativo: contributo para uma discussão crítica. Anál. Soc., Lisboa, v. 49, n. 210, p. 28-54, 2014. Available in: <http://www.jstor.org/stable/23722984>. Cited: 2021 Nov. 20.
6. United Nations, Population Division, World Population Prospects, New York, 2019. Available in: <https://www.un.org/development/desa/pd/news/world-population-prospects-2019-0>. Cited: 2023 Sept. 26.
7. Veras RP, Estevan AA. Modelo de atenção à saúde do idoso: a ênfase sobre o primeiro nível de atenção. In: Lozer AC, Leles FAG, Coelho KSC (org). Conhecimento técnico-científico para qualificação da saúde suplementar. Brasília, DF: OPAS, 2015. p. 73-84.
8. Moraes EN, Reis AMM, Moraes FL de. Manual de Terapêutica Segura no Idoso. Belo Horizonte: Folium, 2019. 646p.
9. Szwarcwald CL, Damacena GN, Souza Júnior PRB de, et al. Percepção da população brasileira sobre a assistência prestada pelo médico. Ciênc. Saúde Colet. Feb 2016;21(2):339-50. Available in: <https://doi.org/10.1590/1413-81232015212.19332015>. Cited: 2021 Nov. 01.
10. Veras RP. A contemporary care model for older adults should seek coordinated care, grater quality and the reduction of costs. Int J Fam Commun Med. 2019b;3(5):210-14. DOI: 10.15406/ijfcm.2019.03.00159
11. World Health Organization, World Health Statistics 2011. Available in: <https://www.who.int/docs/default-source/gho-documents/world-health-statistic-reports/en-whs2011-full.pdf>. Cited: 2023 Sept. 25.
12. Veras RP. New model of health care improve quality and reduce costs. MOJ Gerontol Ger. 2019a;4(4):117-120. DOI: 10.15406/mojgg.2019.04.00191
13. Caldas CP, Veras RP, Motta LB, et al. Atendimento de emergência e suas interfaces: o cuidado de curta duração a idosos. J. Bras. Econ. Saúde. 2015;7(1):62-69.
14. Veras RP. O modelo assistencial contemporâneo e inovador para os idosos. Rev Bras Geriatr Gerontol. 2022;25(3):1-13. e200061. <https://doi.org/10.1590/1981-22562022025.230065.pt> 2020b.

15. Carvalho VKS, Marques CP, Silva EN. A contribuição do Programa Mais Médicos: análise a partir das recomendações da OMS para provimento de médicos. *Ciênc. Saúde Colet.* 2016;21(09):2773-87. <https://doi.org/10.1590/1413-81232015219.17362016>.
16. Veras RP, Oliveira M. Linha de cuidado para o idoso: detalhando o modelo. *Rev. Bras. Geriatr. Gerontol.* 2016;19(6): 887-905. <https://doi.org/10.1590/1981-22562016019.160205>.
17. Veras RP. Caring Senior: um modelo brasileiro de saúde com ênfase nas instâncias leves de cuidado. *Rev. Bras. Geriatr. Gerontol.* 2018;21(3):360-66. DOI:10.1590/1981-22562018021.180100.
18. Moraes EM organizador. *Princípios básicos de geriatria e gerontologia.* Belo Horizonte: Coopemed; 2009. 700 p.
19. Veras RP, Caldas CP, Lima KC de, et al. Integração e continuidade do cuidado em modelos de rede de atenção à saúde para idosos frágeis. *Rev. Saúde Pública* 2014;48(2):357-365. <https://doi.org/10.1590/S0034-8910.2014048004941>.
20. Saenger ALF, Caldas CP, Motta LB. Adaptação transcultural para o Brasil do instrumento PRISMA-7: avaliação das equivalências conceitual, de item e semântica. *Cad. Saúde Pública*, 2016;32(9):1-7. <https://doi.org/10.1590/0102-311X00072015>.
21. Tanaka OY, Oliveira VE de. Reforma(s) e estruturação do Sistema de Saúde Britânico: lições para o SUS. *Saúde Soc* 2007;16(1):7-17. <https://doi.org/10.1590/S0104-12902007000100002>
22. Oliveira M, Veras RP, Cordeiro HA et al. A mudança de modelo assistencial de cuidado ao idoso na Saúde Suplementar: identificação de seus pontos-chave e obstáculos para implementação. *Physis* 2016;26(4):1383-94. <https://doi.org/10.1590/S0103-73312016000400016>.
23. Geyman JP. Disease management: panacea, another false hope, or something in between. *Ann. Fam. Med* 2007;5(3):257-60. doi: 10.1370/afm.649.
24. Porter ME. A strategy for health care reform: toward a value-based system. *N. Engl. J. Med* 2009; 361:109-112. DOI: 10.1056/NEJMp0904131.
25. Lima KC, Veras RP, Caldas CP et al. Effectiveness of intervention programs in primary care for the robust elderly. *Salud Pública México* 2015;57(3):265-74. In: Lima KC, Veras RP, Caldas CP et al. *Health Promotion and Education: a study of the effectiveness of programs focusing on the aging process.* *Int J Health Serv* 2017 Jul;47(3):550-70. doi: 10.1177/0020731416660965.
26. Veras RP, Gomes JAC, Macedo ST. A coordenação de cuidados amplia a qualidade assistencial e reduz custos. *Rev. Bras. Geriatr. Gerontol* 2019;22(2):1-13. <https://doi.org/10.1590/1981-22562019022.190073>
27. Moraes EN, Moraes FL de. *Avaliação Multidimensional do Idoso.* 4 ed. Belo Horizonte: Folium, 2014.
28. Folstein MF, Folstein SE, McHugh PR. "Mini-mental State". A practical Method for grading the cognitive state of patients for the clinician. *J Psychiatr Res* 1975;12(3):189-98. doi: 10.1016/0022-3956(75)90026-6.
29. Lima-Costa MF, Veras RP. Saúde pública e envelhecimento [editorial]. *Cad. Saúde Pública*, 2003;19(3):700-01. <https://doi.org/10.1590/S0102-311X2003000300001>.
30. Castro MC, Massuda A, Almeida J, et al. Brazil's unified health system: the first 30 years and prospects for the future. *Lancet* 2019;394(10195):345-56. doi: 10.1016/S0140-6736(19)31243-7.
31. Turner G, Clegg A. Best practice guidelines for the management of frailty: a British Geriatrics Society, Age UK and Royal College of General Practitioners, report. *Age Ageing* 2014;43(6):744-7. <https://doi.org/10.1093/ageing/afu138>.
32. Veras RP. The Current Challenges of Health Care for the Elderly. *J. Gerontol. Geriatr. Res* 2015b;4(3):1-13. <https://doi.org/10.4172/2167-7182.1000223>. In: Veras RP. *Bem Cuidado: um modelo integrado com ênfase nas instâncias leves de cuidado.* Rio de Janeiro: ANS, 2018a.
33. Machado RSP, Coelho MASC, Veras RP. Validity of the portuguese version of the mini nutritional assessment in brazilian elderly. *BMC Geriatr* 2015;15:132. doi: 10.1186/s12877-015-0129-6.
34. Veras RP. An Innovative Healthcare Model for the Elderly in Brazil: Care Coordination Extends Care Quality and Reduces Costs. *Int. J. Intern. Med. Geriatr* 2019c;1(2):33-42.
35. Pedro WJA. Reflexões sobre a promoção do Envelhecimento Ativo. *Kairós* 2013;16(3):1-24. <https://doi.org/10.23925/2176-901X.2013v16i3p9-32>.
36. Oliveira M de, Veras RP, Cordeiro HA. A importância da porta de entrada no sistema: o modelo integral de cuidado para o idoso. *Physis* 2018;28(4):7-18. <https://doi.org/10.1590/S0103-73312018280411>
37. Chultz MB, Kane AE, Mitchell SJ et al. Age and life expectancy clocks based on machine learning analysis of mouse frailty. *Nat. Commun* 2020;11(4618):1-10. <https://doi.org/10.1038/s41467-020-18446-0>.

38. Moraes EM. Atenção à saúde do idoso: aspectos conceituais. Brasília, DF: OPAS, 2012. 98p.
39. Rubenstein LZ, Harker JO, Salvà A et al. Screening for Undernutrition in Geriatric Practice: developing the Short-Form Mini Nutritional Assessment (MNA-SF). *J Gerontol A Biol Sci Med Sci* 2001;56(6):M366-72. <https://doi.org/10.1093/gerona/56.6.M366>.
40. Lachs MS, Feinstein AR, Cooney Jr LM et al. A simple procedure for general screening for functional disability in elderly patients. *Ann Intern Med* 1990;112(9):699-706. <https://doi.org/10.7326/0003-4819-112-9-699>
41. Katz S, Ford AB, Moskowitz RW et al. Studies of illness in the aged. The index of ADL: a standardized measure of biological and psychosocial function. *JAMA* 1963;185:914-19. <https://doi.org/10.1001/jama.1963.03060120024016>.
42. Moraes EN, Moraes FL, Lima SPP. Características biológicas e psicológicas do envelhecimento. *Rev. Méd* 2010;20(1):67-73. ID: lil-545248
43. Lawton MP, Brody EM. Assessment of people: self-maintaining and instrumental activities of daily living. *Gerontologist* 1969;9(3):179-186. http://dx.doi.org/10.1093/geront/9.3_Part_1.179
44. Tinetti ME. Performance-oriented assessment of mobility problems in elderly patients. *J. Am. Geriatr. Soc* 1986;34:119-126. <https://doi.org/10.1111/j.1532-5415.1986.tb05480.x>
45. Abicalaffe CL. Pay For Performance Program for Brazilian Private Health Plan. How to Implement and Measure. In: *ISPOR*, 13., 2008, Toronto. Anais [...]: Toronto: ISPOR, p. 1-10, 2008.
46. Costa ALFA, Santos VR. Da visão à cidadania: tipos de tabelas de avaliação funcional da leitura na educação especial. *Rev. Bras. Oftalmol* 2018;77(5): 269-302. <https://doi.org/10.5935/0034-7280.20180065>
47. Nitrini R, Scaff M. Testes neuropsicológicos de aplicação simples para o diagnóstico de demência. *Arq. Neuropsiquiatr* 1994;52(4):1-10. <https://doi.org/10.1590/S0004-282X1994000400001>
48. Yesavage JA, Brink TL, Rose TL et al. Development and validation of a geriatric depression screening scale: a preliminary report. *J. Psychiatr. Res.* 1992;17(1):37-49. [https://doi.org/10.1016/0022-3956\(82\)90033-4](https://doi.org/10.1016/0022-3956(82)90033-4)
49. Nunes BP, Soares UM, Wachs LS et al. Hospitalização em idosos: associação com multimorbidade, atenção básica e plano de saúde. *Rev. Saúde Pública* 2017;51(43). <https://doi.org/10.1590/S1518-8787.2017051006646>
50. Lima-Costa MF, Barreto SM, Giatti L. Condições de saúde, capacidade funcional, uso de serviços de saúde e gastos com medicamentos da população idosa brasileira: um estudo descritivo baseado na Pesquisa Nacional por Amostra de Domicílios. *Cad. Saúde Pública* 2003;19(3): 735-43. <https://doi.org/10.1590/S0102-311X2003000300006>
51. Veras RP. Garantir a saúde e o bem-estar dos idosos: desafios de hoje e amanhã. *Rev. Bras. Geriatr. Gerontol* 2015a;18(3): 473-74. <https://doi.org/10.1590/1809-9823.2015.0146>
52. Guerra ACLC, Caldas CP. Dificuldades e recompensas no processo de envelhecimento: a percepção do sujeito idoso. *Ciênc. Saúde Colet* 2010;15(6):2931-2940. ID: lil-559825.
53. Caldas CP, Veras RP, Motta LB da. et al. Models of Approach to Outpatient Older Persons Care. *Sci. J. Public Health* 2014;2(5): 447-53. <https://doi.org/10.11648/j.sjph.20140205.21>.
54. Alves JED. Envelhecimento populacional no Brasil e no mundo. *Rev. Longeviver* 2019;1:5-9.
55. Lourenço RA, Veras RP. Mini-Exame do Estado Mental: características psicométricas em idosos ambulatoriais. *Rev Saúde Pública* 2006;40(4):712-19. <https://doi.org/10.1590/S0034-89102006000500023>
56. Moraes EN de, Lopes PRR. Manual de Avaliação Multidimensional da Pessoa Idosa para a Atenção Primária à Saúde: Aplicações do IVCF-20 e do ICOPE. 1ª Edição, CONASS, 2023. 95p.
57. Paixão Júnior CM, Reichenheim ME. Uma revisão sobre instrumentos de avaliação do estado funcional do idoso. *Cad. Saúde Pública* 2005;21(1):7-19. <https://doi.org/10.1590/S0102-311X2005000100002>
58. Veras RP. Coordination of care: a contemporary care model for the older age group. *MOJ Gerontol. Geriatr* 2020a;5(2):50-53. <https://doi.org/10.1590/S0102-311X2005000100002>
59. Oliveira M. Cordeiro, H.; Veras RP. O modelo de remuneração definindo a forma de cuidar: por que premiar a ineficiência no cuidado ao idoso? *J. Bras. Econ. Saúde* 2018;10: 198-202. ID: biblio-915120
60. Veras RP. Experiências e tendências internacionais de modelos de cuidado para com o idoso. *Ciênc. Saúde Colet* 2012;17(1): 231-37. <https://doi.org/10.1590/S1413-81232012000100025>
61. Ramos LR, Tavares NUL, Bertoldi AD et al. Polifarmácia e polimorbidade em idosos no Brasil: um desafio em saúde pública. *Rev. Saúde Pública* 2016;50(suppl 2):1-10. <https://doi.org/10.1590/S1518-8787.2016050006145>

62. Maia LC, Colares TFB, Moraes EM de et al. Idosos robustos na atenção primária: fatores associados ao envelhecimento bem-sucedido. *Rev. Saúde Pública* 2020;54:1-10. <https://doi.org/10.11606/s1518-8787.2020054001735>
63. Cachioni M. Universidades da terceira idade: das origens à experiência brasileira. In: Neri AL, Debert GG(org). *Velhice e Sociedade*. Campinas: Papirus, 1999, p 141-178. ISBN-13:978-8530805579.
64. Ramos LR, Andreoni S, Coelho-Filho JM et al. Perguntas mínimas para rastrear dependência em atividades da vida diária em idosos. *Rev. Saúde Pública* 2013;47(3):506-13. <https://doi.org/10.1590/S0034-8910.2013047004325>
65. D'orsi E, Xavier AJ, Ramos LR. Trabalho, suporte social e lazer protegem idosos da perda funcional: estudo epidioso. *Rev. Saúde Pública* 2011;45(4):1-10. <https://doi.org/10.1590/S0034-89102011000400007>
66. David HMSL, Riera JRM, Mallebrera AH et al. A enfermeira gestora de casos na Espanha: enfrentando o desafio da cronicidade por meio de uma prática integral. *Ciênc. Saúde Colet* 2020;25(1):1-10. <https://doi.org/10.1590/1413-81232020251.29272019>
67. Veras RP, Caldas CP, Cordeiro HA. Modelos de atenção à saúde do idoso: repensando o sentido da prevenção. *Physis* 2013;23(4): 1189-1213. <https://doi.org/10.1590/1413-81232020251.29272019>
68. Moura, MMD; Veras RP. Acompanhamento do envelhecimento humano em centro de convivência. *Physis* 2017;27(1):19-39. <https://doi.org/10.1590/S0103-73312017000100002>
69. Veras RP, Oliveira M. Envelhecer no Brasil: a construção de um modelo de cuidado. *Ciênc. Saúde Colet* 2018;23(6): 1929-1936. <https://doi.org/10.1590/1413-81232018236.04722018>
70. Veras RP, Galdino AL. *Caring Senior Modelo Assistencial Contemporâneo: Coordenação de cuidado, ampliação da qualidade e redução de custos*. Rio de Janeiro: UnATI/UERJ, 2021.
71. Silva AMM, Mambrini JVM, Peixoto SV et al. Uso de serviços de saúde por idosos brasileiros com e sem limitação funcional. *Rev. Saúde Pública* 2017;51(suppl1):1-10. <https://doi.org/10.1590/S1518-8787.2017051000243>
72. Baltes PB, Mayer KU, Helmchen H et al. "The Berlin Aging Study (BASE): Overview and Design". *Ageing Soc* 1993;13(4): 483-515. <https://doi.org/10.1017/S0144686X00001343>.
73. Giacomini KC, Peixoto SV, Uchoa E et al. Estudo de base populacional dos fatores associados à incapacidade funcional entre idosos na Região Metropolitana de Belo Horizonte, Minas Gerais, Brasil. *Cad. Saúde Pública* 2008;24(6):1-10. <https://doi.org/10.1590/S0102-311X2008000600007>
74. Oliveira M, Veras RP, Cordeiro HA. Supplementary Health and aging after 19 years of regulation: where are we now? *Rev. Bras. Geriatr. Gerontol* 2017;20(5):624-33. <https://doi.org/10.1590/S0102-311X2008000600007>
75. Aguiar CF, Assis M. Perfil de mulheres idosas segundo a ocorrência de quedas: estudo de demanda no Núcleo de Atenção ao Idoso da UnATI/UERJ. *Rev. Bras. Geriatr. Gerontol* 2009;12(3):1-14. <https://doi.org/10.1590/1809-9823.2009.00007>