GO SUPPORT

Geriatric Oncology Specialized Unique Program Plus Organized Resources and Treatment

TREATMENT MODEL AND PROPOSAL

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Reimagining How Older Adults Are Both Optimized and Supported

From Comprehensive Geriatric Evaluation prior to surgery or chemotherapy to providing essential management of adverse effects of treatment GO SUPPORT will address unique challenges that affect frail older adults

What is GO SUPPORT?

As the population ages the incidence of cancer is on the rise in those above the age of 60

GO SUPPORT is a framework that takes a comprehensive approach to older adults's unique challenges when it comes to malignancy. The model not only addresses underlying frailty which in turn requires a personalized treatment strategy but also provides a multidisciplinary support team. Using the principles of Geriatric Medicine all aspects of a patient's profile are attended to including but not limited to functional and cognitive status, nutrition, physiological reserve and psychological health. As families and caregivers are involved they will be supported and educated as well

Cancer remains a disease of the elderly based simply on genomic instability and accumulated DNA damage yet evidence based treatment strategies have primarily focused on younger patients

Life expectancy is increased to where the World Health Organization (WHO) estimates that it will certainly exceed age 80 in developed countries. In the United States alone it is estimated that the number of older adults will double by 2060 reaching almost 100 million.According to the US National Cancer Institute's Surveillance Epidemiology and End Results (SEER) Database over 50% of new malignancies are diagnosed in those over the age of 70. Age however is no longer found to be an independent factor in poor outcomes. In fact the old paradigm of the elderly patient with cancer is changing. Older adults are more variable with regard to their co morbidities and physiological reserve. Simply judging someone by their chronological age instead of taking of comprehensive view is depriving families and their loved ones effective treatment options that do not necessarily have to reduce quality of life and can still improve progression free survival. Newer options such as Immnunotherapy, intensity modulated radiation therapy and targeted therapy have been shown to have a tolerable side effect profile. Nonetheless, there is no universal treatment modality that can be applied to all older adults as this group of patients have unique challenges. These challenges go well beyond the basic co morbid conditions that can be present in almost any average individual. It includes the added pressure to examine the variable of age on both physical and neurocognitive function. The science of aging is a very complex interplay between different molecular and physiological processes which are still not completely understood as some patients undergo what we call "healthy aging" while others do not. That is why an individualized approach needs to be taken to each older adult diagnosed with malignancy. Treatment can be tailored based on careful evaluation using the principles of Geriatric Medicine. Simply relegating older adults diagnosed with malignancy as cases suitable for palliative care without full consideration for tailored treatment and support options is no longer acceptable. However, the converse is also true, over aggressive treatment with cytotoxic agents used in the general population can lead to very poor outcomes. Treating the "disease" as opposed to treating the patient can have dire consequences on quality of life. This can render older adults with severe disabilities which often leads to more psychosocial stress then the original diagnosis itself. Geriatric Medicine akin to Pediatric Medicine involves the input and counseling of families who play an integral role in the patient's lives. This may also involve careful decision making regarding advanced directives and goals of care where ultimately a palliative approach is adopted.

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Taking care of the older adult takes certain expertise not only in the Comprehensive Geriatric Evaluation but also in also managing survivorship issues that arise well after treatment is completed.

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Identifying Those Older Adults Who Are Most Vulnerable Takes a Multi-pronged Approach

Tailoring cancer treatment for older adults requires the skill of a comprehensive geriatric assessment that has been he cornerstone of what Geriatricians do. This means that in conjunction with outlining with an Oncologist a treatment plan that requires cancer staging a functional assessment needs to be performed. As older adults usually carry multiple co morbidities these need to be considered and often times it takes a primary care provider with a background in geriatrics to coordinate specialists recommendations. These include adjustment and possible elimination of medications that may either interact with one another or potentiate chemotherapy side effects. Additionally simplifying complex regimens will lead to better adherence as well. Multiple domains of functional status need to be evaluated and these range from psychosocial, cognitive to physical. This can be time consuming and are not usually feasible in the Oncologists's busy practice. GO Support hopes to fill in that gap by over the course of pretreatment visits assessing detailed functional history that includes various aspects of ADL's and IADL's (Activities of Daily Living and Instrumental Activities). This often includes the input of family or caregivers as well. Short or Extended Physical Performance Battery would be administered which would assess Gait Speed, Lower Extremity Strength and Balance which have in the literature been validated to be valuable in identifying underlying frailty. Underlying sarcopenia or osteoporosis can be early identified and also addressed.

The GO Support model will utilize the skill of a geriatrician to work in conjunction with oncology in not only identifying underlying frailty n the older adult but also in potentially optimizing the patient physically prior to treatment. This can range from addressing and monitoring nutritional deficits to providing structured physical therapy recommendations. Finally potentially visiting nurse from GO Support could potentially perform a home safety assessment to ensure that any potential hazards that could lead to falls can be addressed.

FUNCTIONAL STATUS

Functional status is variable amongst older adults and cannot be judged simply by chronological age. A comprehensive Geriatric Assessment can be helpful in teasing out any underlying functional deficits or frailty that would be otherwise missed on general physical exam

Psychosocial/Cognitive Challenges in Older Adults Diagnosed with Cancer

Older adults are a greater risk of experiencing cognitive impairment as physiological reserve declines over time and this is compounded by the deleterious effects of chemotherapy

Monitoring for and addressing potential neurocognitive impairment in older adults being treated for cancer takes care and consideration. From the limited studies that have included older adults it has been shown that in breast cancer patients was strongly associated with cognitive impairment. The "chemobrain" concept has been demonstrated in all patients and the older adult remains more vulnerable. Oncologists while well versed in different treatment modalities do not have the time or resources to perform a comprehensive cognitive assessment. Go Support will employ the expertise of Geriatricians and Neuropsychiatrists who can work together to first perform baseline assessment and to continue periodic monitoring. Managing prophylactic acetylcholinesterase inhibitor therapy for patients undergoing whole brain radiation can also be done in routine follow up visits as patients continue with chemotherapy.

Additionally as older adults face the physical challenge of both diagnosis and treatment there can be a psychological component that needs to be addressed as well. Generally older adults have a higher incidence of pre existing depression which could be due to clinical psychiatric illness or more situational in nature. This can be exacerbated by facing the prospect of cancer treatment which entails significant side effects of which pain and further loss of independence. Many older adults lack strong social support and it may involve a dedicated Geriatrician well versed in managing psychotropic therapy under the guidance or in conjunction with a Geriatric Psychiatrist.. An evaluation with tools such as the MHI17 has been shown to be beneficial in older adults diagnosed with cancer.

Many older adults come from an era where cancer is synonymous with death and suffering despite the wide variety of treatment modalities. It has been studied that older adults are often

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when faced with a diagnosis of cancer are in denial and resignation. Managing difficult discussions regarding goals of care and optimization of end of life care is essential in cases with treatment may cause more harm than good. Geriatricians are well versed in not only assessing functional capabilities but also helping patients and their families prioritize what is best for them taking int account their unique values.

Psychological resilience has been shown to be an important factor in ensuring better outcomes overall and in older adults with cancer and engaging their caregivers throughout the process plays a critical role

Facing malignancy is devastating at any age yet older adults often already have multiple co morbidities, functional impairments and cognitive/emotional concerns which provides even more distress. This often translates to distress to other family members who play a key role as caregivers throughout treatment. Go Support hopes to provide resources for support groups facilitated by social workers where families and patients can share their experiences and exchange coping strategies to help them along the way.

While understanding the unique needs of older adults geriatric trained social workers can address and financial and or logistical concerns that may hinder optimal treatment. Navigating Insurances and Medicare can be confusing for both patients and families. Through support groups, not only patients have the opportunity remove the fear that they are facing challenges in isolation. In fact, the strong bonds created in assisted living facilities between residents are valuable.. Members of Go Support geriatric oncology support groups and also foster supportive relationships throughout treatment and the maintenance/ survivorship phase as well.

Additionally, caregivers can also have some much needed connections which can increase their chances for resiliency as it is estimated that 70% of caregivers have clinically significant symptoms of depression, with approximately one quarter to one half of these caregivers meeting the diagnostic criteria for major depression.

Palliative Care

Principles of supportive oncology through the integration of palliative care physicians at time of diagnosis has been shown to improve overall outcomes and for older adults this holds more value as they are more prone to toxicity

Research shows that older adults treated for malignancy are at higher risk for myelotoxcity, Nausea/Vomiting and Delirium. Patients in this age group may have multiple other co morbidities and are prone to the effects of polypharmacy as well. Supportive oncology through the integration of Palliative care physicians right within the Go Support model will address the unique needs of the older adult. As with increased frailty and higher risk of treatment failure, an expert team of palliative care experts can help patients and their families come to terms with difficult decisions regarding goals of care. Additionally exploring how over treatment can affect patient's quality of life can be taken into account in a non threatening and understanding environment. Efforts to facilitate transition to hospice and he management of end of life care can be coordinated. Providing resources for patients and their families can be highly beneficial and coordinated with their geriatrician who has established a therapeutic relationship. Addressing caregiver physical and emotional burden at end life can also be addressed as well

Survivorship beyond your average primary care appointment
The GO Support model will continue to address patient's physical and psychological needs ranging from chronic pain, cognitive impairment to any adverse side effects from chemotherapy.

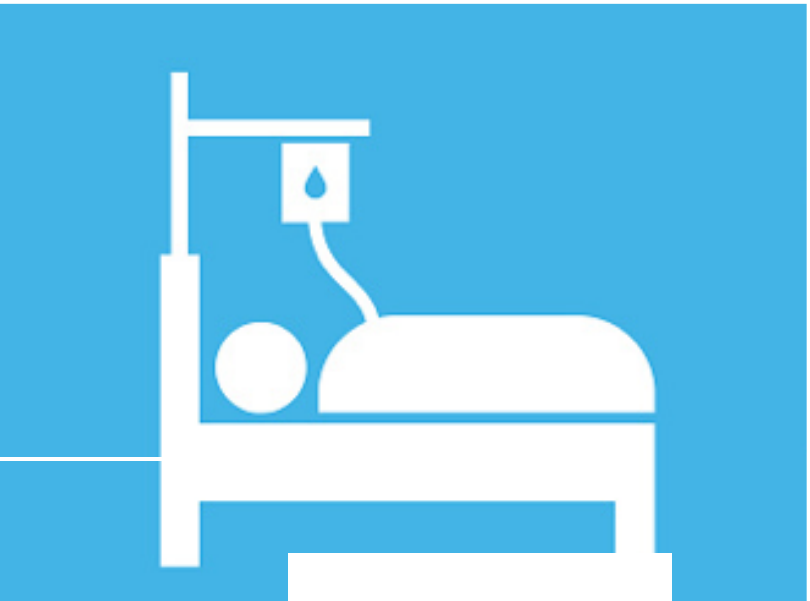
After Treatment

After active malignancy treatment older adults continue to have residual effects which need ongoing monitoring

Skilled geriatricians who have built a relationship with patients can work in conjunction with oncology to monitor for any side effects of maintenance therapy. GO Support will have ongoing contact with the patient to monitor any residual physical weakness and cognitive deficit monitoring. Although residual effects of Chemotherapy induced cognitive deficits are thought to be self limited, in the older adult they may have profound long term effects on functional status. Chronic medical conditions such as heart failure or COPD can be exacerbated by certain chemotherapy regimens as well and will have to be carefully managed. Acute sequelae of neutropenia and higher risk of infections need to be monitored for as well. Bone health and monitoring for depression , fatigue and nutrition are also essential. Those older adults who undergo bone marrow transplant are at greater risk for adverse outcomes such as graft versus host disease as well. Providing support counseling and caregiver resources can also guide patients after treatment. The strong therapeutic relationship that GO Support geriatricians along with a multidisciplinary team can provide will ensure that the older adult will have a comprehensive resource. Building on successful models such as the PACE model (Program of All-inclusive Care for the Elderly) GO Support can address the specific survivorship needs of older adults.

THE APPROACH

Go Support with involve a team of professionals including Geriatricians, Psychiatrists, along with Nurse Practitioners, Social Workers, and Nutritionists working in conjunction with the primary Hematology/Oncology team addressing several key areas



Comprehensive Physical Assessment
In addition to detailed history and assessment of Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs), muscle strength and gait speed along with several other validated scales of function can prove valuable in developing individualized oncological treatment plan

Functional Testing

Both pretreatment and post treatment functional assessment can highlight hidden vulnerabilities and provide insight on how to preserve function

Patients during the course of a pretreatment visit will undergo extensive history including detailing their functional status including family members as well for collateral history if need be. Performing SF-36 survey can also be performed. Further pre treatment testing would also include Timed up and Go Test for 4 meters along with Grip Strength. These measurements can give a general overview of a patients's functional baseline. Gait Speed is another additional variable which if measured correctly can predict functional status in those older adults with cancer (Sassani, 2019). Following treatment and through active treatment, side effects can be monitored through periodic assessment using the Short Physical Performance Battery which would include measuring gait speed, lower extremity strength through timed repeat chair stand and finally tandem stand for 10 seconds to assess balance. Should there be any deficits, which could be recognized early GO Support would refer them to physical therapy.

The goal in older adults is generally to preserve function yet also assessing baseline function can provide much needed insight on underlying frailty which would then help guide the Oncology Medical and Surgical team on appropriate treatment options which may include reduced intensity chemotherapy option.

Neurocognitive Evaluation
A comprehensive plan to monitor and address potential neurocognitive impairment will be developed to ensure that the GO Support patient and their family will be provided resources early on to avoid decline in function and quality of life as they undergo cancer treatment

Neurocognitive Impairment

Not only do Older Adults become more prone to what is known as "Chemobrain" but also instances of delirium are higher post operatively and can impact recovery

Each patient will undergo a pretreatment baseline neurocognitive evaluation by a skilled geriatrician which could include a variety of measures such as the MMSE (Mini Mental State Examination), MOCA (Montreal Cognitive Assessment) or BOMC (Blessed Orientation and Memory Concentration Test. If a patient is found to have significant other psychological factors that could be contributing to underlying baseline cognitive impairment a full neuropsychological evaluation could be pursued. Additionally planning for some sort of decreased mental acuity can be discussed with families and caregivers including ways to prophylactically intervene. Preemptive strategies could include starting acetylcholine esterase inhibitors for those undergoing whole brain radiation to participating in a regimen of neurocognitive exercises. Additionally GO Support can help patients and families as they undergo treatment with regard to better recognizing delirium and ways of addressing it early.

Finally involving caregivers early on will help the patient develop a resilience strategy at home to adapt to any potential expected or early detected neurocognitive decline.

Addressing Caregiver Burden
Caregiver burden is an area where Geriatricians are skilled at working in conjunction with social workers to assist families to deal with the potential side effects of treatment which may impact the patient's functional status

Caregiver Support

Caring for a loved one with cancer can prove to be a challenge and this can often be amplified with one who may already have some degree of functional decline

It is the Geriatrician who often works with families to help families develop strategies to cope with general functional decline. From dealing with delirium to apathy families play a vital role. The psychosocial impact of greater role reversal for adult children can lead to greater amounts of caregiver burden which can also amount to financial hardship. Furthermore this has been shown not only in older patients undergoing active treatment but also in those cancer survivors who may have ongoing maintenance regimens with some residual functional deficits (Haley, 2003). The GO Support clinic model will work closely with families through periodic family meetings during follow up appointments to address coping strategies for various side effects of treatment. These can range from redirection techniques for agitation and prevention of delirium to managing nausea and pain. Additionally social workers would be on hand who will be familiar with each patient's unique psychosocial circumstances who can provide resources. Patients would be followed longitudinally throughout their treatment and can be periodically followed though maintenance regimens as well.

Finally psychosocial support along with Hospice referral would be provided for those patients whose malignancy has advanced to a degree where treatment would not be advised

Anxiety and depression during and after treatment
Facing the challenges of malignancy can often highlight underlying depression/anxiety which is often under diagnosed in the older adult

Psychological Support

Cancer treatment often brings out and amplifies underlying psychiatric co morbidities in the older patient which often becomes a limiting factor to recovery

Anxiety/depression is very common among patients of any age being treated for malignancy prompting a field of psycho-oncology which addresses the unique needs of this population. With respect to the older adult the rigors of cancer treatment can be uniquely stressful and anxiety provoking. Coping with pain and adverse side effects of treatment requires high reliance and coping strategies which prove to be essential to recovery. Transient or permanent functional deficits can also require the guidance of a psychologist/psychiatrist. The GO Support model will include objective evaluation by skilled Geriatric Psychiatrists who can continue to monitor for depression and anxiety which may also be exacerbated by certain chemotherapeutic regimens. Additionally adopting proven programs such as the Improving Mood-Promoting Access to Collaborative Treatment (IMPACT) program can be used. This model has been shown to be highly effective in older patients with cancer (Fann, 2009). Psychologists working together with caregivers can help provide coping strategies and adaptive techniques in setting of aggressive treatment. Finally, counseling for the patient during palliative phase of malignancy is essential. Geriatric Psychiatrists who have been following the patient throughout the course of their treatment will be skilled to address the patient's individual end of life psychological needs

Maintaining adequate nutrition becomes essential in the recovery of the older adult

Older adults during the course of cancer treatment underestimate the need for adequate nutrition which can make all the difference in their overall physiological reserve

Nutritional Support

Maintaining adequate weight to minimize sarcopenia in older adults are part and parcel of what Geriatricians work toward and become essential during the course of cancer treatment

Functional status is greatly impacted by muscle strength and older adults in general are at risk for sarcopenia. This is often due to poor dietary intake. During the course of cancer treatment anorexia and difficulty maintaining nutritional support becomes common, The GO Support model will have a geriatrician monitoring weights and by use of Validated nutritional screening tools, such as the Malnutrition Screening Tool (MST). (Mislang ,2018) A nutritionist would be on hand to work with the patient and their caregivers. Many factors play into poor nutritional status and these can range anywhere from nausea, dyspepsia to poor fitting dentures. Additionally side effects of chemotherapeutic regimens will affect sensation of taste requiring a development of an individualized food plan that will take into account protein needs while minimizing worsening of any other preexisting medical conditions such as congestive heart failure. Teaching family and caregivers about techniques such as small frequent meals can be beneficial along with careful use of pharmacological appetite stimulants as needed.

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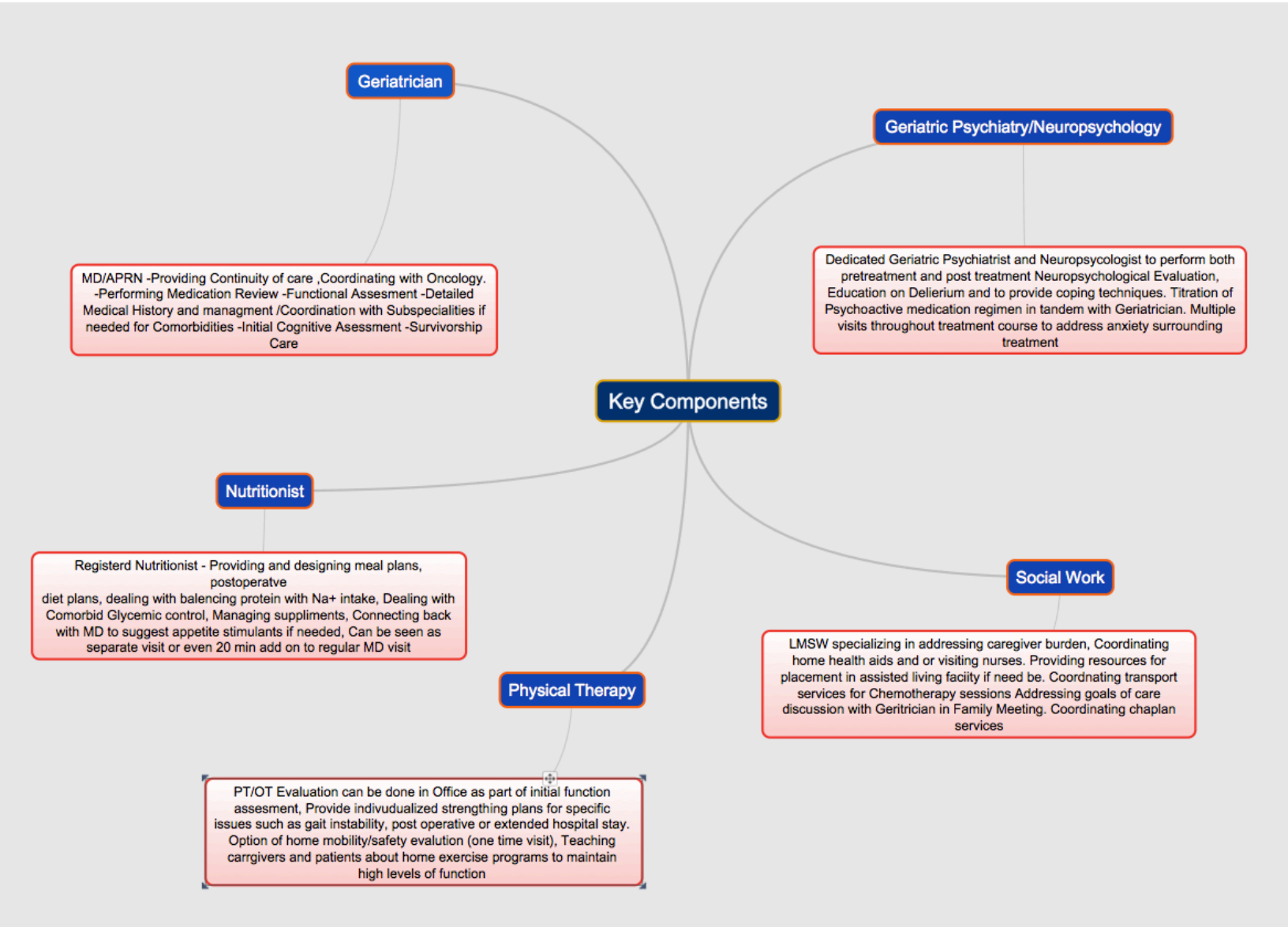
Clinic Components

Multidisciplinary Approach

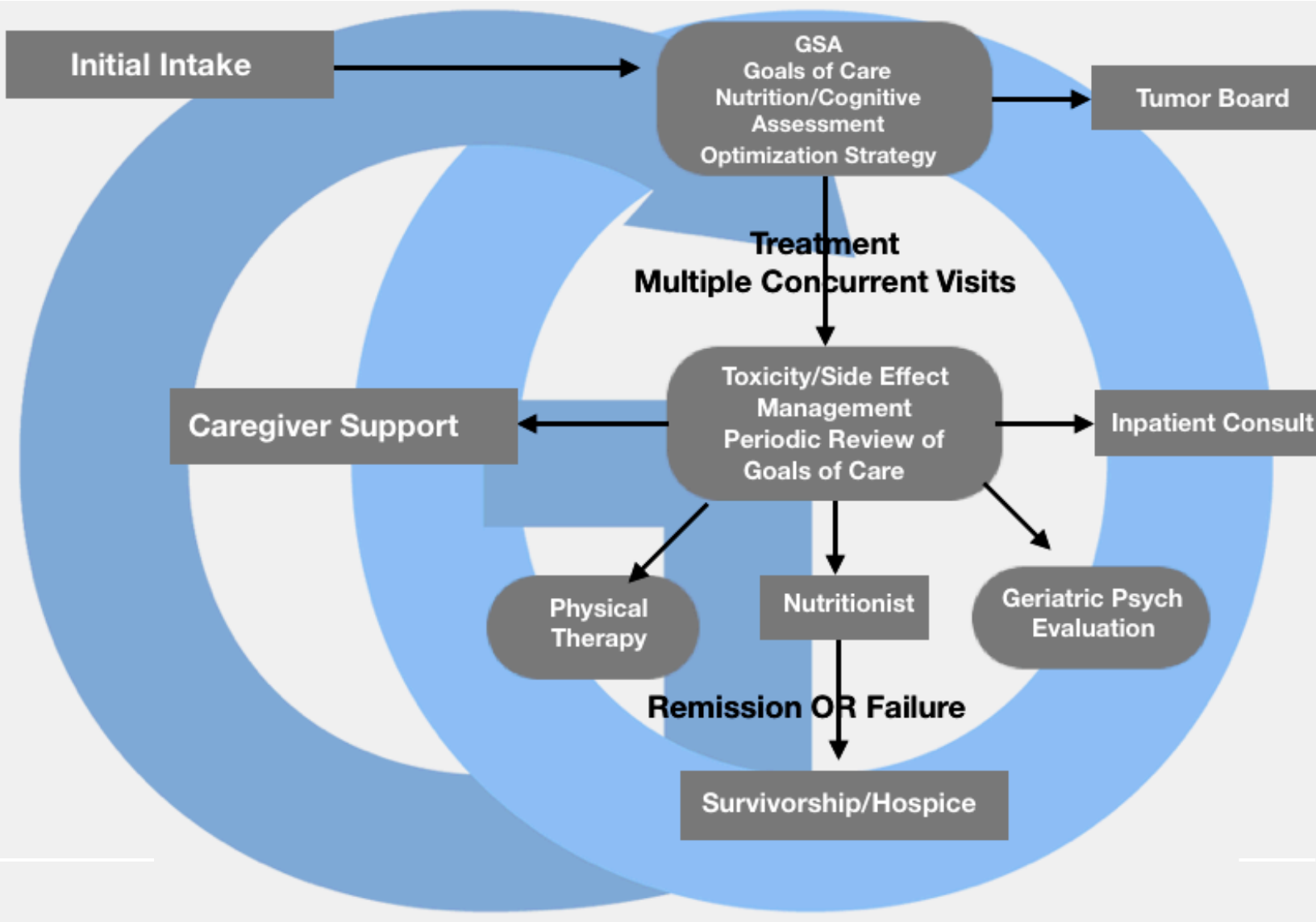


Clinic Design

The GO Support model will be specifically designed for meeting the unique needs of older adults and this will include larger exam rooms to accommodate wheelchairs and hallways with railings and gait speed monitors. Providing an environment where important family meetings can take place would be a priority. Additionally the clinic would structured so that adequate time would be available for initial encounters to allow for comprehensive geriatric assessment . Support staff would be educated on taking a different approach to these patients which includes on assisting patients when taking vital signs and weight measurements. The ideal design would be to house the GO Support clinic within an existing Cancer Center so that patients can combine appointments with their Oncologist and the Geriatricians at the GO Support clinic. Integrated access and information sharing between the EMR will allow all of the multidisciplinary teams to access and understand each patient's unique needs.

Integration with Oncology

Once a patient is diagnosed with malignancy, the GO Support clinic referral will begin at the request of Oncology Colleagues in all older adults. Visits would include an initial comprehensive intake with Geriatric Assessment followed by periodic monitoring and follow up. This would include nutritional, psychological support. Specific Treatment midway point would include reassessment of Goals of Care. Survivorship primary geriatric care following treatment. If needed inpatient consult and advocacy and/or input in Tumor Board conferences to help assist with optimization of treatment approach



Staffing Needs

The GO Support model needs to have a multidisciplinary team however the essential staff of the clinic will have Medical Assistants, Reception Staff and other clinical personnel who are sensitive to the unique needs of older adults

The GO Support clinic can be modeled after general Academic Medical Center Geriatric outpatient practices. Several board certified geriatricians along with APRNs and PA can be backbone with at least 2 social Workers. Additionally Medical Assistants will need to be trained to assist in preliminary intake and medication reconciliation. One RN to administer vaccines and provide additional support will be ideal. Since this model employee a multidisciplinary approach, a Geriatric Psychiatrist and with a Neuropsychologist would need to be in the clinic at least 2 days a week. Physical Therapist can potentially do initial assessments with later physical therapy sessions being scheduled in the appropriate setting. Nutritionists would also come at least 2 days a week. A weekly meeting to discuss patients with specific concerns can be conducted in a "Tumor Board" style session where different team members can discuss concerns. Integration with assessments and timely reports would be provided to Oncology. The hope would be that one liaison or from Oncology would attend this meeting and vice versa where a Geriatrician on a complicated case would attend Tumor Board

Conclusion

Overall, the GO Support model of care is a comprehensive concept that will aim to address the unique challenges that the older adult diagnosed with malignancy faces. It is hoped that the multidisciplinary approach and working with oncology colleagues will not only ensure that patient's tumor burden gets addressed but more importantly their quality of life is enhanced. Often in the exciting advances of oncology patients get reduced to a case and the goal become focused on addressing the cancer itself without looking at the greater picture of the patient and the family behind it. Sometimes the goal may not be to simply shrink the tumor but to allow the patient who wants to be able to see their grandchild graduate from high school. To the patient who loves to write poetry , walking might not be a priority but cognitive ability is. Here lies the need individualize treatments to help balance the specie goals of care of the older adult. Often "goals of care" is thought to be a discussion of how to withdraw care but this is far from the case. Goals of care means treating the person instead of simply the disease. With an onslaught of older adults every increasing until the year 2029 in the United States, Geriatric Oncology is going to be field that is going to have to account for the unique challenges that older population faces. Beyond medicine, Geriatricians have focused on the psychosocial aspects that can greatly make or break successful treatment. The GO Support model will take into account concepts from the holistic view of the patient to work with Oncology to ensure that treatments not only attack cancer but also enhance patient's lives.

Older adults have been marginalized by either being over treated or under treated. Taking a comprehensive evaluative approach will help formulate treatment strategies so that patients are not victim to needless treatment that effects their quality of life and do not align with their goals of care. On the other hand assuming patients are frail without a comprehensive assessment leaves older adults at risk of not fighting cancer when they want to. Pediatric Oncology has been addressing cognitive and quality of life issues along with the needs of caregivers and families and now it is high time that older adults get a specialized focus as well

"You treat a disease, you win, you lose. You treat a person, I guarantee you, you'll win, no matter what the outcome."

-Hunter "Patch" Adams MD

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