CANCER REHABILITATION SYMPOSIUM JUNE 8-9, 2015

Work group1: Rehabilitation Clinical Models for Cancer Care

Primary Objectives

- Highlight practice models and evidence for models in various settings of care
- Identify common elements of care models, including intervention and education
- Identify deficits in research and challenges regarding practical elements of implementation
- Highlight examples of existing practice models at institutions and identify common elements that could be recognized as foundational to cancer rehab programs

Participants

Name	Affiliation
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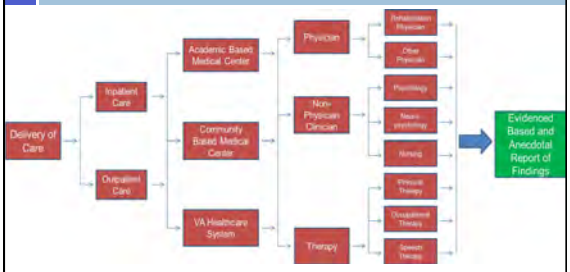
Galen Joe, M.D.	National Institutes of Health

Workflow Diagram



Institute of Medicine

2006 Institute of Medicine (IOM) report

- Discussed the contribution of rehabilitation services in helping cancer survivors "regain and improve their physical, psychosocial, and vocational function within the limitation imposed by the disease and its treatment."
- The IOM report noted the **paucity of organized cancer rehabilitation programs and practitioners**
- The few programs that exist are generally housed within hospital-based physical medicine and rehabilitation programs or in large cancer centers.
- With the shift in cancer care from the inpatient to the outpatient setting **the IOM report raised the concern that the rehabilitation needs of cancer survivors are not being met**

Considerations for Care Delivery

- Regulatory and legislative requirements for delivery of inpatient rehabilitation care
- Outpatient rehabilitation may be limited by caps on therapy services
- Outcomes based work will affect reimbursement rates

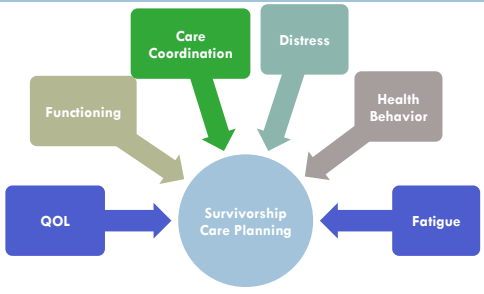
Examples of Non-Physician Based Models

- Current framework
  - Survivorship
  - Psychology
  - Cognitive Rehabilitation
  - Return to work
- Existing models
  - Cardiac rehabilitation
  - LiveSTRONG

LiveSTRONG at the YMCA

- 12 weeks outpatient based exercise program
- Focus on physical activity after cancer diagnosis
- Program typically supervised by a YMCA trainer with variable levels of certification

Constructs in Survivorship Care Planning



Parry et al *TBM* 2015;5:53–59.

Constructs in Survivorship Care Planning

IOM *Lost in Transition*

- Surveillance
  - Recurrence, 2nd CAs, late effects
- Intervention for treatment consequences
  - Medical/psychosocial/ economic chronic & late effects
- Prevention of recurrence/new CAs, late effects
- Coordination between PCP and specialists to ensure all needs are met

LIVESTRONG Essential Elements (Tier 1)

- Survivorship care plan, psychosocial care plan and treatment summary
- Screening for new cancers and surveillance for recurrence
- Care coordination strategy that addresses care coordination with primary care physicians
- and primary oncologists
- Health promotion education
- Symptom management and palliative care

Psychology and Rehabilitation

Timing of Screening: Patients with cancer are offered screening for distress a minimum of 1 time per patient at a pivotal medical visit to be determined by the program.

Cognitive Rehabilitation

- Cognitive effects are often dismissed during cancer treatment as temporary
- Post-treatment cognitive effects have no large scale, randomized trial results to guide treatment (adults)
- These cognitive effects are often treated through a "best practices" approach derived from other brain diseases
- Reimbursement is difficult and seldom occurs as a primary treatment focus

Cognition

- Cognitive impairment can directly affect treatment through difficulty managing care transitions, medications, and decision-making
- Cognitive impairment can directly affect quality of life by impeding return to work or other meaningful activities
- Cognitive impairment can result in loss of independence

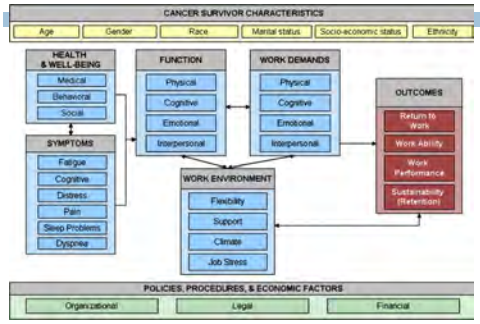
Cancer & Employment Literature

- Literature on interventions is limited and few studies with control groups conducted
- Interventions tend to be limited to psychological counseling, encouragement and exercise/activity

Cancer Survivorship & Work Research Model

Mehnert, A. (2011). Employment and work-related issues in cancer survivors. *Critical reviews in oncology/hematology, 77*(2), 109-130.

Cancer & Work Model



Feuerstein, Todd, Moskowitz, Bruns, Stoler, Nassif, Yu (2010). Work in cancer survivors: A model for practice and research. J Cancer Surviv. 4(4):415-37.

Cardiac Rehabilitation Model

- Model of care currently in place
- Exercise training is the cornerstone of this program
- Utilizes a number of psychosocial and lifestyle interventions to improve the health of participants
- Employs a multistage approach with professional patient oversight declining with improving patient health

Dittus et al. J. Cardiopulm Rehabil Prev 2014;34;1
Schmitz KH. Cancer Prev Res. 2011;4:476

Cardiac Rehabilitation Model

- Participation rate in cardiac rehabilitation is typically low
- Cardiac rehabilitation professional staff are not trained in screening for or treating oncology specific comorbidities
- Utilization during trajectory of cancer care is unclear
- Requires referral
- Reimbursement issues

Sandesara et al. JACC. 2015;65:389

Practice Models in Various Care Settings

Inpatient

- Academic
  - Acute Care Hospitals (ACHs)
    - Academic Cancer Center
    - Academic Medical Center
  - Inpatient Rehabilitation Facilities (IRFs)
- Community
  - Acute Care Hospitals (ACHs)
    - Non-academic Cancer Center
    - Community Hospital
  - Inpatient Rehabilitation Facilities (IRFs)
  - Long-term Acute Care Hospitals (LTACHs)
  - Skilled Nursing Facilities (SNFs)
- Veterans Administration
  - Acute Care Hospitals (ACHs)
  - Inpatient Rehabilitation Facilities (IRFs)

Outpatient

- Academic
- Community
- Veterans Administration
- Day treatment Programs
- Home Rehabilitation
- Gym-based

What is Comprehensive?

- National Cancer Institute (NCI)
  - 68 NCI-designated cancer centers
    - 41 Comprehensive cancer centers
    - 27 Designated cancer centers
- National Comprehensive Cancer Network (NCCN)
  - 26 Member Institutions

Change in Oncology Practice

- 1980s
  - The majority of cancer care delivered in large specialized tertiary cancer centers
- Present day
  - Most cancer care delivered in physician-owned practices
    - earlier detection
    - improved treatments (less radical surgery, combined-modality therapy, and adjuvant endocrine therapy)
  - Hospitalized patients have shorter stays

Alfano CM, Ganz PA, Rowland JH, Hahn EE. Cancer survivorship and cancer rehabilitation: revitalizing the link. J Clin Oncol 2012;30(9): 904-6.

Does Lymphedema = Comprehensive?

A 2002 study of services offered by National Cancer Institute (NCI) -designated comprehensive cancer centers demonstrated that 70% had a lymphedema management program but no other cancer rehabilitation program.

Tesauro GM, Rowland JH, Lustig C. Survivorship resources for post-treatment cancer survivors. Cancer Pract 2002;10(6): 277-83

"Comprehensive Cancer Rehabilitation" Models

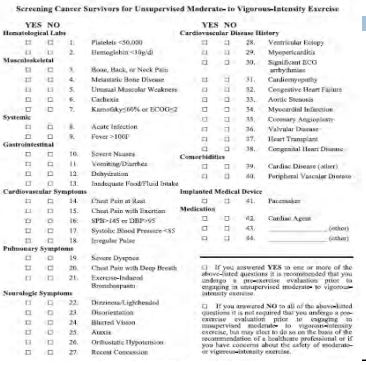
1. Exercise training and other services as needed coordinated by an exercise specialist
2. Broad network of multidisciplinary providers coordinated by a physiatrist

Alfano, CM, Ganz, PA, Rowland JH. Cancer survivorship and cancer rehabilitation – revitalizing the link. J Clin Oncol 2012;30:904-6.

Impairments in Cancer Survivors

- Neuromuscular
  - Cerebropathy
  - Myelopathy
  - Radiculopathy
  - Plexopathy
  - Neuropathy
    - Polyneuropathy
    - Mononeuropathy
    - Mononeuropathy Multiplex
    - Ganglionopathy
    - Small Fiber
  - Myopathy
  - Disorders of Neuromuscular Transmission
  - Pain
- Musculoskeletal
  - Tendonitis
  - Adhesive Capsulitis
  - Epicondylitis
  - Tenosynovitis
  - Spolndylosis
  - Spinal Instability
  - Fracture
  - Impending Fracture
  - Arthritis
  - Enthesopathy
  - Osteoporosis
  - GVHD
  - Scoliosis
  - Bony Metastases
  - Pain
- Functional
  - Lymphedema
  - Fatigue
  - Psychiatric
  - Cognitive
  - Autonomic
  - Cardiac
  - Pulmonary
  - Endocrine
  - Gastrointestinal
  - Urinary
  - Genitourinary
  - Debility/frailty
  - Balance dysfunction

Risk-Screening for Unsupervised Exercise



Screening Cancer Survivors for Unsupervised Moderate- to Vigorous-Intensity Exercise

YES	NO			YES	NO		
Hematological Labs				**Cardiovascular Disease History**			
☐	☐	1.	Platelets <50,000	☐	☐	28.	Ventricular Ectopy
☐	☐	2.	Hemoglobin <8g/dl	☐	☐	29.	Myocarditis
Musculoskeletal				☐	☐	30.	Significant ECG arrhythmias
☐	☐	3.	Bone, Back, or Neck Pain	☐	☐	31.	Cardiomyopathy
☐	☐	4.	Metastatic Bone Disease	☐	☐	32.	Congestive Heart Failure
☐	☐	5.	Unusual Muscular Weakness	☐	☐	33.	Aortic Stenosis
☐	☐	6.	Cachexia	☐	☐	34.	Myocardial Infarction
☐	☐	7.	Karnofsky≤60% or ECOG≥2	☐	☐	35.	Coronary Angioplasty
Systemic				☐	☐	36.	Valvular Disease
☐	☐	8.	Acute Infection	☐	☐	37.	Heart Transplant
☐	☐	9.	Fever >100F	☐	☐	38.	Congenital Heart Disease
Gastrointestinal				**Comorbidities**			
☐	☐	10.	Severe Nausea	☐	☐	39.	Cardiac Disease (other)
☐	☐	11.	Vomiting/Diarrhea	☐	☐	40.	Peripheral Vascular Disease
☐	☐	12.	Dehydration	**Implanted Medical Device**			
☐	☐	13.	Inadequate Food/Fluid Intake	☐	☐	41.	Pacemaker
Cardiovascular Symptoms				**Medications**			
☐	☐	14.	Chest Pain at Rest	☐	☐	42.	Cardiac Agent
☐	☐	15.	Chest Pain with Exertion	☐	☐	43.	_____ (other)
☐	☐	16.	SPB>145 or DBP>95	☐	☐	44.	_____ (other)
☐	☐	17.	Systolic Blood Pressure <85				
☐	☐	18.	Irregular Pulse				
Pulmonary Symptoms							
☐	☐	19.	Severe Dyspnea				
☐	☐	20.	Chest Pain with Deep Breath				
☐	☐	21.	Exercise-Induced Bronchospasm				
Neurologic Symptoms							
☐	☐	22.	Dizziness/Lightheaded				
☐	☐	23.	Disorientation				
☐	☐	24.	Blurred Vision				
☐	☐	25.	Ataxia				
☐	☐	26.	Orthostatic Hypotension				
☐	☐	27.	Recent Concussion				

☐ If you answered **YES** to one or more of the above-listed questions it is recommended that you undergo a pre-exercise evaluation prior to engaging in unsupervised moderate- to vigorous-intensity exercise.

☐ If you answered **NO** to all of the above-listed questions it is not required that you undergo a pre-exercise evaluation prior to engaging in unsupervised moderate- to vigorous-intensity exercise, but may elect to do so on the basis of the recommendation of a healthcare professional or if you have concerns about the safety of moderate- or vigorous-intensity exercise.

Brown JC, et al. Development of a risk-screening tool for cancer survivors to participate in unsupervised moderate- to vigorous-intensity exercise – results from a survey study. PMR 2015;7:113-22.

Acute Rehabilitation Care Models

Acute Care Model

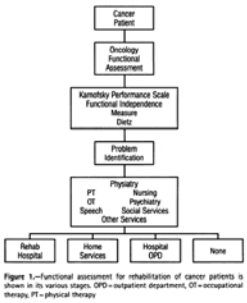


Figure 1.—Functional assessment for rehabilitation of cancer patients is shown in its various stages. OPD = outpatient department, OT = occupational therapy, PT = physical therapy

70 patients

- 14% independent ambulation at admission
- 80% independent or supervised ambulation at discharge
- 28 of 37 patients maintained or improved discharge functional level at 3 months
- 19 died

O'Toole DM, golden AM. Evaluating cancer patients for rehabilitation potential. West J Med 1991;155:384-7.

Post-Acute Care Model

Tertiary Care Center Model – Mayo clinic, Rochester, MN

- Cancer Adaptation Team (CAT) – Goal "to assist in **discharge planning** by performing a functional assessment of a patient, making recommendations for adaptive equipment and home modifications, and identifying community recourses."
- Members
  - Full-time nurse coordinator
  - Physiatrist
  - Occupational therapist
  - Physical therapist
  - Social services
  - Chaplain

Schmidt, KD. Cancer rehabilitation services in a tertiary care center. Cancer 2001;92:1053-4.

Tertiary Care Center Model – Mayo clinic, Rochester, MN

- Challenges
  - Primary services occasionally reluctant to consult CAT
  - Fears CAT would give inappropriate prognostic information to patients or would delay discharge
  - Discomfort over role issues among CAT members and other medical caregivers
    - i.e. role in bracing patients with an unstable spine
  - Boundaries of the nurse coordinator not always clear as social services and primary nurse also responsible for discharge
  - Communication difficult with large student, resident and oncology pool
  - Discharge planning complicated by diversity in patient home location, culture, religion, and multiple clinical care sites.

Schmidt, KD. Cancer rehabilitation services in a tertiary care center. Cancer 2001;92:1053-4.

Outpatient Models

Multidimensional Rehabilitation Programs (MDRPs)for Adult Cancer Survivors

Cochrane Review

- 12 RTCs (1669 participants)
- Physical and Psychological Rehabilitation
- -MDRPs treating one specific area more helpful than those that addressed several
- Successful MDRPs usually involved face-to-face contact (nurse, PT) and at least 1 follow-up phone call
- MDRPs delivered by a specific type of health professional or for a single cancer site were not more successful than brief, focused MDR"'s for mixed groups of cancer patients

Scott DA, Mills M, Black A, Cantwell M, Campbell A, Cardwell CR, Porter S, Donnelly M. Multidimensional rehabilitation programmes for adult cancer survivors. Cochrane Database Syst Rev. 2013 Mar 28;3:CD007730.

Outpatient Multidimensional Rehabilitation Model

- Cancer Center at Providence Alaska Medical Cancer
- Cancer Diagnosis (any stage or length of time from diagnosis)
- Referral from healthcare provider
- Multidisciplinary
  - Nursing
  - Physical therapy
  - Dietetics
  - Psychosocial support
- Personalized interdisciplinary plan
- Supportive counseling as needed
- Two two-hour sessions per week for 10 weeks
- Exercise equipment and group classes hosted by oncology nurse or PT
- Exercises to "promote strength, relaxation, overall health, mind-body healing

Predeger, EJ, O'Malley M, Hendrix T, Parker NM. Oncology rehabilitation outcomes over time: a mixed-methods approach. ONF 2014;41:E56-63.

Outpatient Multidimensional Rehabilitation Model

- Cancer survivors who completed rehabilitation program:
  - Retained a sense of restoration and caring
  - Some engaged in physical activity over time
  - Adapting program based in "insights into the survivor perspective" my help cancer rehabilitation clinicians to promote optimal physical activity and sustain a healthful change

Predeger, EJ, O'Malley M, Hendrix T, Parker NM. Oncology rehabilitation outcomes over time: a mixed-methods approach. ONF 2014;41:E56-63.

Community Clinical Oncology Program – Gibbs Regional Cancer Center, Spartanburg, SC

Goal – "To help cancer patients adapt and achieve optimal functioning through comprehensive rehabilitation services."

- Objectives
  - Meeting the psychological and functional needs of cancer patients.
  - Addressing the psychological, social, emotional, and spiritual needs of cancer patients.
  - Providing ongoing education to reduce cancer risks and increase early detection.
  - Providing administrative support to plan, coordinate, and oversee rehabilitation activities for cancer patients.

Clark J, Ford S, Hegedus, P. Developing a comprehensive cancer center rehabilitation program. J Oncol Manag. 2004;13:13-21.

Community Clinical Oncology Program – Gibbs Regional Cancer Center, Spartanburg, SC

- Core Elements
  - Occupational therapy
  - Physical therapy
  - Speech-language pathology
  - Art, music, and massage therapies
  - Individual and group counseling
  - Spiritual guidance
  - Nutrition education
  - Cancer updates

Clark J, Ford S, Hegedus, P. Developing a comprehensive cancer center rehabilitation program. J Oncol Manag. 2004;13:13-21.

Community Clinical Oncology Program – Gibbs Regional Cancer Center, Spartanburg, SC

- Key Elements
  - Proximity to other cancer treatment services
  - Dedicated space where all rehabilitation components coordinated with a multidisciplinary team approach

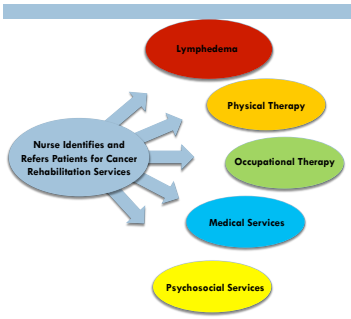
Clark J, Ford S, Hegedus, P. Developing a comprehensive cancer center rehabilitation program. J Oncol Manag. 2004;13:13-21.

Community Clinical Oncology Program – Gibbs Regional Cancer Center, Spartanburg, SC

- Program Components
  - Physical therapy
  - Occupational therapy
  - Lymphedema therapy
  - Exercise programs
  - Fatigue program
  - Speech-language pathology
  - Dietitian
  - Social worker
  - Chaplain
  - Classes
  - Massage therapy

Clark J, Ford S, Hegedus, P. Developing a comprehensive cancer center rehabilitation program. J Oncol Manag. 2004;13:13-21.

Outpatient Nurse Centered Model



Franklin D, Delengowski AM, Yeo TP. Facing forward: meeting the rehabilitation needs of cancer survivors. Onc Nurse Edition 2010;24:21-32.

Home-based Cancer Rehabilitation Model

- Nurse-centered model
  - Makes initial assessment
  - Initiates home care plan
  - Coordinates care
    - Homemaker
    - Home health aid
    - Rehabilitation counselor
    - PT/OT/SS
    - Nutritionist
    - Recreation therapist
    - Enterostomal therapist
    - Respiratory therapist
    - Chaplain
    - Psychologist/counselor
    - Volunteers
    - Physicians
- Levels of Care

  I – No disfigurement or disability; life expectancy good

  II – Physical or psychological disability ; life expectancy good

  III – Shortened life expectancy; with or without disfigurement or disability

Blesch KS. Rehabilitation of the cancer patient at home. Semin Onc Nurs 1996;12:219-25.

Telephone-delivered Occupational Therapy Model

- RCT of telephone-delivered problem-solving-occupational therapy (PST-OH) intervention to reduce participation restrictions in rural breast cancer survivors undergoing physical therapy
  - Primary outcome: Feasibility
  - Secondary outcomes: functional, quality of life, and emotional status at baseline, 6, and 12 weeks
  - Conclusion: PST-OH is feasible and may have positive effects on function, quality of life, and emotional state

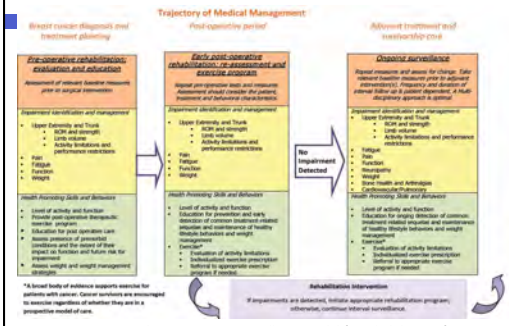
Hegel, MT, Lyons, KD, Hull JG, et al. Feasibility study of a randomized controlled trial of a telephone-delivered problem-solving-occupational therapy intervention to reduce participation restrictions in rural breast cancer survivors undergoing chemotherapy. Psycho-Oncology 2011:20:1092-1101.

Prospective Surveillance Model

"a proactive approach to periodically examining patients and providing ongoing assessment during and after disease treatment, often in the absence of impairment, in an effort to enable early detection of and intervention for physical impairments known to be associated with cancer treatment"

Stout NL. Physical Therapy. 2009;89(11):1119

Prospective Surveillance Model for Physical Rehabilitation for Women with Breast Cancer



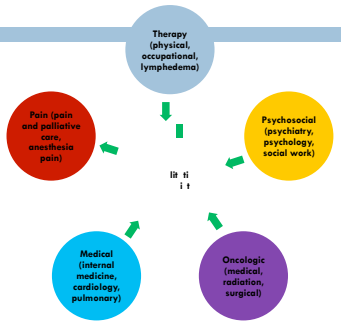
Stout NL, et Al. A prospective surveillance model for rehabilitation for women with breast cancer. Cancer 2012;118:2191-2000.

Prospective Surveillance Model

- Feasibility of implementing this surveillance model in survivors of breast cancer
- Preliminary findings and challenges:
  - Appears to have reduced late effects of surgery
  - Patient navigation through the surveillance period was critical
  - Physical therapists were involved starting at pre-op
  - Reimbursement and payment challenges
  - Adherence became problematic 3-4 months after completion of treatment

Kirkpatrick et al. APTA Combined Sections Meeting, 2015

Comprehensive Cancer Rehabilitation



Franklin D, Delengowski AM, Yeo TP. Facing forward: meeting the rehabilitation needs of cancer survivors. Onc Nurse Edition 2010;24:21-32.

Conclusions

- Cancer rehabilitation care delivery requires a multifaceted approach that considers systems of practice
- Models must be multidisciplinary in nature in order to accommodate patient need
- Innovative constructs are necessary to determine appropriate models for specific settings

Appendix

Accreditation Standards

Commission on Cancer (ACOS-2015)

[Rehabilitation services] can be provided either on-site or by referral to hospitals, freestanding facilities, physician offices, or local community agencies that are external to the CoC-accredited cancer program.

Standard: A policy or procedure is in place to access rehabilitation services either on-site or by referral.

Psychology in Cancer Rehabilitation

Commission on Cancer Standards (ACOS—2015)
STANDARD 3.2
Psychosocial Distress Screening
The cancer committee develops and implements a process to integrate and monitor on-site psychosocial distress screening and referral for the provision of psychosocial care.

U.S. Models of Pre-habilitation

Consultative Service to expand treatment options (Mary Washington Hospital, Fredricksburg, VA)

- Pre-surgical assessment and referral (thoracic surgery)
- Goals: improve surgery safety, shorten recovery time

Silver, J. Oncology Issues, May-June, 2015

U.S. Models of Rehabilitation

Embedded service models for high-risk symptoms (Anne Arundel Medical Center, Annapolis, MD)

- Cancer rehabilitation navigation
- Speech therapy in radiation oncology focused on head/neck cancer consult prior to or at initiation of XRT

Silver, J. Oncology Issues, May-June, 2015

U.S. Models of Rehabilitation

Phased Implementation of Oncology Rehabilitation

Phase 1 – focus on severe deficits and deconditioning during treatment

Phase 2 - ongoing deficits and focuses on improving fitness immediately post-therapy.

Phase 3 – completion of Phase 2 or longer term survivors without significant deficits.

Dimus, KL, et al. JCRP, 2015;35:130-139

International Models of Care – The National Health Service

http://www.macmillan.org.uk/Documents/AboutUs/Research/Researchandevaluationreports/Throwinglightontheconsequencesofcanceranditstreatment.pdf

Using a Risk Stratification Model, goals of survivorship care include:

1. Avoid [late effects/ complications] where possible
2. Acknowledge, measure, code and report routinely
3. Services to reduce distress and functional impairment

Most Common Factors Affecting Employment In Persons Living with Cancer

- Cancer site and physical effects
- Symptoms (e.g. fatigue, chemobrain)
- Employer accommodation
- Flexible working arrangements
- Availability of counseling
- Training & Rehabilitation
- Age
- Education
- Type of work

Other Major Themes

- Meaning of work and worker identity
- Disclosure
- Discrimination
- Managing the work environment including relationships with peers & supervisors
- Limited intervention models published, non-systematic information provided by health providers and much of the literature is on interventions in European countries

Comprehensive Cancer Center Model – MD Anderson Cancer Center

- Marketed
- Medical student elective
- Resident rotation
- Fellowship
- Continuing educational courses (local, regional, national)
- Journal publications
- Consult service
- Outpatient services
- Inpatient service
- Adequate facilities.
- Research program

Girabois, M. Integrating cancer rehabilitation into medical care at a cancer hospital. Cancer 2001;92:1055-7.