97% (p = 0.002) reduction, as compared to A2780 tumor progression in vehicle treated animals, indicating that targeting both the intrinsic and extrinsic apoptosis pathway can be a new strategy for more effective ovarian cancer treatment.

Scientific Symposium (Wed, 23 Sep, 09:00−11:00)
Divergence within cancer nursing roles

198 INVITED

Revision of professional roles: is this safe and effective?

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Background: Pressures to increase the quality of care and reduce the cost of healthcare services have led to the redefinition of the roles of healthcare professionals. There has been an upsurge in the number and types of healthcare professionals working alongside physicians. Here we are concerned with a subset of revisions in which advanced practice nurses (i.e. nurse practitioners, specialist nurse or nurse clinicians, etc.) take on defined tasks that were previously the exclusive domain of physicians. There are two conceptually different approaches to role revision in this context. The first is to deploy nurses as supplements for physicians. Nurses working in this way provide additional services which are intended to complement or extend those provided by physicians. The second approach is to deploy nurses as substitutes for physicians. Nurses working in this way provide the same services as physicians.
Objective: To determine the (cost-) effectiveness of advanced practice nurses working as physicians' supplements or substitutes?
Method: We conducted a systematic literature review of literature reviews.
Results: Eighteen systematic reviews of role revision between physicians and advanced practice nurses were included. Six reviews studied the impact of role revision in primary healthcare settings such as general practice/family medicine, ambulatory or outpatient care, and community care; five reviews focused on secondary healthcare settings such as hospitals and accident and emergency departments; two reviews focused on home care; and the remainder included research in both primary healthcare and secondary healthcare settings. The clinical domain in which the nurses worked varied from generalist care, undifferentiated care or care for multiple diseases to specialist care. None of the reviews was focused on patients with cancer. Eight reviews studied the effects of substitution, eight reviews studied the effects on supplementation and two reviews concerned a mixture of both substitution and supplementation.
The findings showed that patients are equally or better satisfied with the care provided by nurses and clinical outcomes for patients may have improved. Metabolic control of parameters (e.g. HbA1c) sometimes improved by nurses provided care, and mortality rates were not different compared to physicians. In terms of care processes, findings suggest that nurses more frequently provide advice and information to patients and can improve access to healthcare services and treatments. The volume of resources used was larger with nurse-led care than physician-led care. In particular, nurses seemed to order more tests and investigations. In primary care, the length of nurses' consultations was significantly longer than that of physicians. The overall effects on the costs of healthcare and cost-effectiveness were inconclusive.
Conclusion: The available evidence suggests that role revision between physicians and advance practice nurses is a viable strategy; it does not jeopardize patient care and may sometimes improve its quality. However, cost-savings are not always evident and may depend on the specific context of care.

199 INVITED

Evidence of value-added benefit of specialist nursing roles?

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Background: All practitioners in the health care field are being challenged to find ways to demonstrate that the care they provide leads to improvement in outcomes for patients. To accomplish that, practitioners are attempting to identify the relevant outcomes that can be linked in a meaningful way to their own practices.
Purpose: This paper will review the most recent accumulated evidence related to patient and system outcomes that are associated with the role of the clinical nurse specialist (CNS) (advanced practice) role. The objectives include: (1) to identify the essential characteristics or attributes defining CNS practice; (2) to identify outcomes associated with the CNS role; and (3) to determine the extent to which each outcome has demonstrated sensitivity to the CNS role.
Methodology: A systematic review of the literature was conducted. Evidence for the following nurse-sensitive outcomes was reviewed: clinical, functional status, health care utilization, satisfaction, and system. Each study was reviewed using the following framework: research design, setting for practice, sample, method of accounting for confounding variables that could influence the results, CNS role activities, intervention tested, and research results.
Results: The systematic review of the literature showed that the contribution of the CNS role to patient outcomes is variable and of a small magnitude. CNSs contribute to disease/condition specific outcomes, physical and psychosocial symptom outcomes, early identification and prevention of complications, self-management, and patient satisfaction. At the system level CNSs contribute to reduced health care costs, reduced hospitalizations, and reduced hospital length of stay.
Conclusion: Future research is needed to confirm some of the outcome indicators for which there is mixed evidence of sensitivity to CNS practice.

200 INVITED

Developing the potential of community cancer nursing?

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The aim of this presentation is to consider the challenges and opportunities facing nurses who support people with cancer and their families in the community. I propose that 'one size' cannot fit all and innovative approaches to care provision are required to ensure the needs of people and families affected by cancer are met.
In this presentation I will explore the potential contribution of nurses through the cancer trajectory. The focus will be on the exploration of how the needs of people affected by cancer can be met by specialist and generalist community nurses and the interface between primary and secondary care. The following questions form the basis of the presentation:

- What are the challenges and drivers in providing nursing support in the community for those affected by cancer?
- What do we know about the roles currently carried out by nurses in the community?
- What do people affected by cancer want/expect/need services to provide?
- How can nurses develop approaches to care delivery that can meet identified needs across the cancer trajectory from prevention to palliative care?

Countries across Europe face similar challenges in healthcare as the incidence of cancer and an ageing population increases. Furthermore, rising degenerative or chronic diseases, rapid technological developments and the need to change the emphasis from acute care to community care are impacting on service delivery. A primary focus on reducing acute care through emergency admissions and improving health and well-being through preventive care, support for self-care, targeting those at risk, and pro-active approaches in the form of anticipatory care are also emerging as important factors in health care. Nurses are, and need to be, at the forefront of new models for service delivery.
Advances in diagnostic techniques and the treatment of cancer mean more people are surviving cancer. A consequence of improved treatments means some people experience long term physical and psychosocial problems.
Given the complex nature of the cancer trajectory and care aims focused around prevention, self care, rehabilitation and survivorship through to palliative care the potential for gaps and unmet needs is considerable. It is unlikely that specialist cancer nurses can deal with this burgeoning workload therefore generalist nurses will be important in service models.
This presentation will draw on policy and research and propose a model which is patient centred. The potential of specialist and generalist cancer nursing roles to meet needs throughout the trajectory will be identified. The intention is not to polarise the debate but rather to map out a possible service model to stimulate debate and discussion.

201 INVITED

Workforce planning in developing specialist cancer nursing roles

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Introduction: In the UK the number of Cancer Nurse Specialists has grown dramatically in recent years. However, in the absence of any workforce strategy this increase has been predominately reactive and uncoordinated. Quantitative data on the UK cancer specialist workforce remains weak and without accurate data it is impossible to effectively commission or develop future specialist nursing roles that will meet projected service needs.

Method and Purpose: A census of the specialist nursing workforce from England, Wales, and Northern Ireland was conducted in November 2008 in an attempt to establish baseline data.
Results: Census response rates ranged from 66% to 100% across the three countries. There were inconsistent numbers of nurse specialists compared to published cancer incidence figures. It did not appear that workforce intelligence had driven staff recruitment. There was also a marked variation in the the number of specialist titles used (England recorded 17 different titles).
Conclusions: The large number of specialist titles could undermine the consistent development of specialist nursing practice; it may be useful to standardise titles. England and Northern Ireland have already used this data to commission additional specialist posts. This census has been an extremely powerful management tool and the information gathered has been used in education, policy development, and workforce design. Other European countries may benefit from conducting their own census activity.

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Current avenues in clinical trials for melanoma treatment

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Melanoma vaccines – quo vadis?

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Background: Metastatic melanoma is a disease for which no effective therapy is available with the possible exception of IFN-α in stage III patients. The immunotherapy approach to such a tumor was started on more convincing scientific basis 15 years ago thanks to the molecular characterization of melanoma antigens (Ags) recognized by T cells (e.g. MAGE, Melan-A/MART1, etc.). In fact, no therapeutic activity was previously obtained after immunotherapy with anti-melanoma and anti-idiotypes antibodies or with vaccine based on autologous/allogeneic melanoma cells.
Results: Approximately 10 years of clinical studies of immunotherapy, while generating important immuno-biological information on the patient immune functions and a remarkable frequency of anti-vaccine immune responses in patients treated with the self (differentiation or cancer/testis) Ags, failed to induce a significant clinical outcome both as tumor response and survival. However, the new generation of immunotherapy studies of the last 3−5 years based on the wealth of new information obtained both in the laboratory and in the clinic and by the application of the genome and post-genome analysis, has provided a more detailed picture of the relationship between tumor and host (including the role of tumor microenvironment). These data have suggested how to obtain not only an increased frequency and strength of the immune response to the different vaccination approaches but how to improve the clinical outcome.
Emerging principles for a successful vaccination of metastatic melanoma include, a) vaccination with multiple Ags (particularly under the form of peptides, perhaps long peptides) to avoid tumor escape caused by immune selection, including Ags belonging to different subgroups (e.g. differentiation, cancer/testis, universal, mutated) and recognized both by CD8 and CD4 T cells; b) new TLR-binding immune adjuvants; c) combination with immunomodulating antibodies (e.g. anti-CTLA4) or cytokines (IFN-α, IL-2, IL-12); d) administration of reagents that can counteract the immunosuppressive environment (anti-Treg, anti-TGFβ antibodies, etc.).
Recent studies also show a relevant increase of clinical response in metastatic melanoma patients receiving adoptive immunotherapy with Ag-specific T cells after immune depletion including pharmacological treatment and total body irradiation. Finally, a clinical phase III study of peptide-based immunotherapy combined with IL-2 has been presented at ASCO 2009 that showed significant increase of frequency of tumor regression in patients receiving such a biological combination therapy compared to patients arm given IL-2 only.
Conclusion: Therefore, though we are still waiting for a large, perspective, phase III study that may unequivocally document the clinical success of vaccination strategy in metastatic melanoma, the future remains promising for this area of investigation even taking into account the recent results of clinical studies of vaccination in other dreadful tumors like non-small cell lung cancer and prostate cancer.

204 INVITED

Angiogenesis in melanoma

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Angiogenesis is essential if metastatic melanoma is to grow beyond a size of 2−3 mm^3. This 'angiogenic shift' occurs when melanoma cells start to produce several growth factors, including vascular endothelium growth factor (VEGF). The process of angiogenesis depends on an interaction between tumour cells, stromal cells, endothelial cells and bone marrow-derived cells. The vascular endothelial growth factor family of growth factors, their receptors, and a number of cofactors, are key components of angiogenesis. There is evidence for expression of angiogenic factors being both prognostic and predictive. However, not all melanomas express VEGF and other angiogenic factors are also important. Considerable evidence has emerged for the central role of bone marrow-derived endothelial and myeloid cells in tumour related angiogenesis. Tumor-associated macrophages (TAM) are major infiltrates of human solid malignancies and release a number of potent proangiogenic factors. Dendritic cells produce a wide range of angiogenic and angiostatic factors, and are inhibited by VEGF.
A number of drugs have been developed to specifically target the components of these pathways. How these drugs result in inhibition of angiogenesis is unclear, but effects are likely to include inhibition of new growth, induction of endothelial cells apoptosis, and effects on vascular including vascular constriction and vascular normalisation, and effects on cell-cell and cell-matrix interactions. Early phase studies with bevacizumab, afibercept and axitinib have shown evidence of activity, though the addition of sorafenib to carboplatin and paclitaxel chemotherapy in both the first and second line metastitic settings showed no impact on survival. This is at odds with the outcome seen for this regimen in lung cancer, and other combinations in breast and colerectal cancer. Since angiogenesis is critical for invasion and metastasis, adjuvant therapy is an important area to explore. The AVAST-M study is a large randomised study comparing bevacizumab with routine follow-up in patients with resected high risk stage II and stage III disease. Targeting angiogenesis has been successful in a number of common cancers. Whether this will also be the case for melanoma remains to be seen.

Scientific Symposium (Wed, 23 Sep, 09:00−11:00)
Molecular imaging of cancer

206 INVITED

Reporter gene imaging in cancer: from mouse to man

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Molecular-genetic imaging in living organisms has experienced exceptional growth over the past 10 years, and can be defined as "the macroscopic visualization of cellular processes in space and time at the molecular level of function". It has its roots in molecular and cell biology as well as in imaging technology, chemistry and radiochemistry. Three imaging strategies: based on "direct" and "indirect" assessments of molecular-genetic processes, as well as "bio-marker" or "surrogate" imaging have been combined with three imaging technologies: radionuclide-, magnetic resonance- and optical-based imaging systems.
The "direct" imaging motif builds on established relationships between chemistry/radiochemistry and imaging. Bioconjugate chemistry linking specific binding motifs and bioactive molecules to paramagnetic particles for MR imaging or to radionuclides for PET and gamma camera imaging. This interactive relationship has existed for many years and continues to expand through the development of new relationships and focused interactions between molecular/cellular biologists, chemists, radiochemists, imagers and clinicians. The next generation of direct molecular imaging probes will come from better interactions between pharmaceutical companies, academia and hospitals. Such interactions are now being pursued with the objective to develop and evaluate new compounds for imaging; compounds that target specific molecules (e.g., DNA, mRNA, proteins) or activated enzyme systems in specific signal transduction pathways. However, a constraint limiting direct imaging strategies is the necessity to develop a specific probe for each molecular target, and then to validate the sensitivity, specificity and safety of each probe for specific applications prior to their introduction into the clinic.
Biomarker or surrogate imaging that reflects endogenous molecular/genetic processes is particularly attractive for expansion and translation into clinical studies in the near-term. This is because existing radiopharmaceuticals and imaging paradigms may be useful for monitoring down-stream changes