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BC Cancer Agency
CARE + RESEARCH
An agency of the Provincial Health Services Authority

Cervical cancer screening policy change

By the Cervical Cancer Screening Program

On June 21, 2016, British Columbia updated its cervical cancer screening policy to recommend cytology screening every three years for women age 25 to 69. This new policy reflects the latest evidence and the province's commitment to reducing cervical cancer incidence and mortality.

Screening aims to identify high-grade pre-cancerous lesions which can be treated to prevent the development of cervical cancer. High grade lesions may be treated with ablative and excisional therapies, including laser ablation, loop electrosurgical excision procedure (LEEP) and cold knife conization. Cervical cancer may be treated with surgery (hysterectomy) and/or radiation +/- chemotherapy.

For more information on BC's new cervical cancer screening policy, please visit www.screeningbc.ca/cervix.

	Recommendation	Screening Interval	Balance of Screening Harms and Benefits
Average Risk			
Age 25-69	Screen	3 years	Benefits outweigh harms
Never had sexual contact*	Do not screen	N/A	Harms outweigh benefits
Have received the HPV Vaccine	Screen	3 years	Benefits outweigh harms
In same sex relationship	Screen	3 years	Benefits outweigh harms
Transgender with a cervix	Screen	3 years	Benefits outweigh harms
After total hysterectomy†	Do not screen	N/A	Harms outweigh benefits
Higher than Average Risk			
Age <25	Do not screen	N/A	Harms outweigh benefits
Age >69‡	Do not screen	N/A	Harms outweigh benefits
Immunocompromised women§	Screen	Annual	Benefits outweigh harms
History of pre-cancerous lesions or cervical cancer	Screen	Annual – Until 25 years after diagnosis with at least 5 negative cytology in last 10 years	Benefits outweigh harms

* Sexual contact includes intercourse as well as digital or oral sexual contact involving the genital area of a partner of either gender.

† Including removal of cervix, with no history of pre-cancerous lesions or cervical cancer.

‡ Provided there are 3 negative tests in preceding 10 years and no high risk criteria.

§ Immunocompromised includes those diagnosed with human immunodeficiency virus (HIV/AIDS), lymphoproliferative disorders, an organ transplant, and those under long-term immunosuppression therapy.

Join us for Family Practice Oncology CME Day on November 19: 6.5 Mainpro+ credits

Please join us for this year's Family Practice Oncology CME Day to be held Saturday, November 19 at the Child & Family Research Institute at BC Children's/BC Women's Hospital. Registration is now open at www.fpon.ca. The event provides a great opportunity to gain the most up-to-date knowledge on in-demand oncology topics for primary care, and to build useful cancer care connections.

"We've got an excellent program planned for this year," notes Dr. Raziya Mia, the Network's Clinical Coordinator of Education and Conference Chair, "including insightful presentations and workshops from leading oncologists and specialists. I hope you'll join us!" See the enclosed flyer for full details.

This Group Learning program has been certified by the College of Family Physician of Canada and the BC chapter for up to 6.5 Mainpro+ credits.

Contact Jennifer Wolfe at jennifer.wolfe@bccancer.bc.ca or 604.219.9579

Epidemiology and burden of disease

By Dr. Greg Dueck, Medical Oncologist, BC Cancer Agency, Sindi Ahluwalia Hawkins Centre for the Southern Interior

Almost 8,000 people live with multiple myeloma in Canada. 330 British Columbians are diagnosed with myeloma per year, and 170 British Columbians die from the disease annually (Statistics, Canadian Cancer Society's Advisory Committee on Cancer, 2015). Myeloma has a median age at diagnosis of 69 years, but also occurs in younger patients with 15% of cases diagnosed before 55 years. Myeloma is slightly more common among males than females (National Cancer Institute, 2016).

View the full webcast of this topic at www.fpon.ca – Continuing Medical Education

Presentation and Initial Investigations

The clinical features of myeloma result from the accumulation of malignant plasma cells (myeloma cells) within the bone marrow, and the release of clonal antibodies from the myeloma cell population (Durie, 2016). Presenting signs and symptoms include bone destruction and associated bone pain, bone marrow failure and resulting anemia and other cytopenias, production of monoclonal protein from myeloma cells which may cause renal insufficiency, neuropathy, hyperviscosity, and coagulopathy. Due to suppression of normal immunoglobulin production and bone marrow dysfunction, myeloma patients may be at increased risk for infection.

Myeloma is a diagnostic challenge because of variable and non-specific symptoms, resulting in relatively long diagnostic delays compared to other cancers. A study of previously undiagnosed myeloma presenting to General Practitioners found the positive predictive value for any individual presenting symptom is low, including bone pain, weight loss, nosebleeds, etc. (Shephard, 2015). However, with a low threshold for considering myeloma, a few standard laboratory tests including complete blood count and differential, serum creatinine, calcium, along with imaging sites of bone pain (e.g., plain x-ray) dramatically improves the predictive ability of investigations. Positive predictive value is greater than 10% for combinations of hypercalcemia and bone pain, or cytopenias and bone pain, for example. Abnormal results should prompt further investigations directed to multiple myeloma. Along with lab tests described above, serum protein electrophoresis is the most useful initial test to identify a monoclonal protein in the serum (also called m-protein, or m-spike). A discussion of monoclonal protein testing is relevant to myeloma, and is reviewed in the accompanying webcast. Bone imaging, protein studies, lab tests, and a bone marrow biopsy are required to confirm the diagnosis of myeloma.

Updated Disease Definition

In 2014, the disease definition for "active" multiple myeloma was updated, to include validated biomarkers associated with an 80% or higher risk of developing myeloma related end organ damage within two years. The updated diagnostic criteria add 3 biomarkers as "myeloma-defining events" to the classic myeloma defining CRAB features (see Figure) (Rajkumar, 2014) .These changes allow treatment to begin before organ damage occurs for some patients who would have been previously diagnosed with high risk smoldering myeloma.

Treatment Considerations

Management of myeloma is evolving rapidly. However, the disease remains incurable with current treatments. Factors potentially influencing treatment choice in the first line and relapsed settings include patient comorbidities and functional status, disease related risk factors such as cytogenetics, response to therapy, toxicity of therapy, and drug access (Dimopoulos M A, 2015). Maintaining quality of life and prolonging survival are primary goals of care. Common treatments in BC include autologous stem cell transplant for those patients who are fit enough, novel agents such as the proteasome inhibitor bortezomib and the immunomodulatory agents lenalidomide and pomalidomide, alkylating agents such as melphalan and cyclophosphamide, and systemic steroids. These drugs are commonly combined into doublet or triplet therapy (BC Cancer Agency Website Myeloma Protocols). Patients are offered treatments on clinical trials throughout BC.

Supportive Care

Pathologic bone disease may require multiple modes of therapy, including analgesics, localized radiation therapy, a bisphosphonate, and kyphoplasty for localized vertebral compression fracture. Nonsteroidal anti-inflammatory drugs for pain are often avoided in myeloma patients

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Pre-Malignant Accumulation → **Malignant Transformation and Progression**

MGUS	Smoldering Myeloma	Myeloma
• M-protein <30g/L, and • BMPC <10%, and • No myeloma related end organ damage • 1%/yr risk of progression to Myeloma • Observation only	• M-protein ≥30g/L, and • BMPC ≥10%, and • No myeloma related end organ damage • 10%/yr risk of progression to Myeloma in the first 5 years • Observation only	• Any M-protein, and • BMPC ≥10%, and • ≥1 CRAB feature of myeloma related end organ damage, or • New criteria including at least one "myeloma defining event": BMPC ≥60%, involved/ uninvolved SFLC ratio >100, 2 or more focal bone lesions on MRI

Abbreviations: MGUS: monoclonal gammopathy of undetermined significance; BMPC: bone marrow plasma cells; CRAB: calcium >2.75mmol/L, renal dysfunction with CrCl <40ml/min or serum creatinine > 177umol/L, anemia with Hb < 100g/L or 20g/L < normal, bone disease including lytic lesions or osteoporosis: SFLC: serum free light chain.

Landmark BC cervical cancer screening trial comes to a close: HPV FOCAL Study

The HPV FOCAL Study, evaluating primary human papillomavirus (HPV) testing for cervical cancer screening, commenced in 2008 at the BC Cancer Agency. Over 25,000 BC women consented to participate in this landmark trial and in August 2016, remaining participants received their final study cervical screens. During the course of the trial, over 1,000 health care providers in the province obtained cervical screens on women in the study.

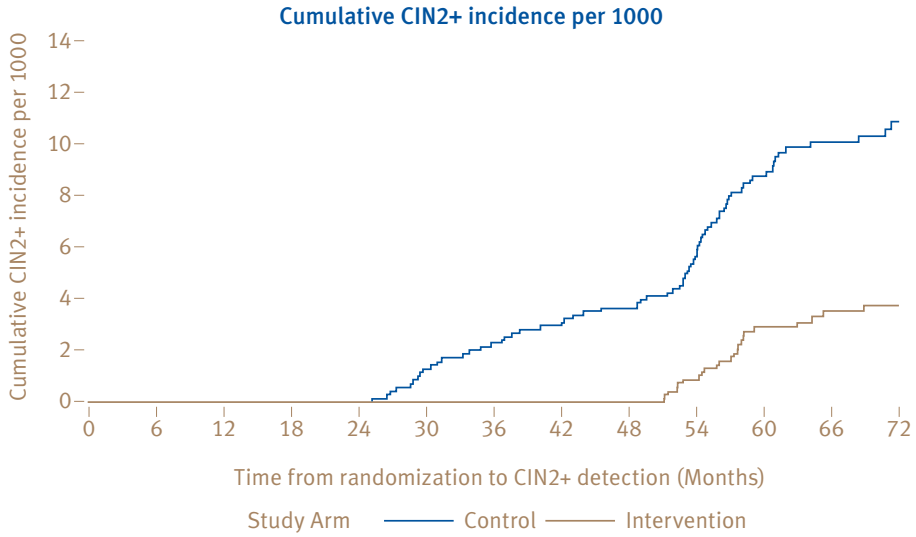
It is now well established that persistent infection with an oncogenic (high-risk) strain of the HPV is necessary for cervical cancer to develop. Most genital HPV infections spontaneously regress within about two years, but if a high-risk HPV infection persists and is left undetected or untreated, it could develop into cervical cancer. The time from acquisition of an HPV infection to development of cervical cancer can take 15-25 years.

Research has shown that HPV testing is much more sensitive for detection of high-grade precancerous lesions than the Pap test. HPV testing sensitivity has been reported as high as 95%, versus 55% for conventional cytology. A negative HPV test provides superior reassurance that a woman is a very low risk of having dysplasia and therefore, HPV testing affords the ability to increase the interval between cervical screens. Although HPV testing has high sensitivity, its specificity is low and therefore, triage testing is required for HPV positive women to ensure that only those at highest risk for having precancerous cervical cells are recommended for further follow-up or treatment.

Given the mounting evidence supporting the use of HPV testing over the Pap smear for cervical cancer screening, programs across Canada and around the world are in various stages of planning for or implementation of HPV testing. The HPV FOCAL Study is unique in that it is the only trial of its kind in North America to evaluate primary HPV testing, with cytology triage for HPV positives in a population-based cervical cancer screening program. The findings from HPV FOCAL have already begun to provide program planners with answers to questions essential to the evolution of cervical cancer screening, not only in BC, but across Canada.

Contact Laurie Smith at laurie.smith@bccancer.bc.ca

Learn more about cervical cancer screening and HPV testing at our November 19 Oncology CME Day and our January 19 Webcast. Register today at www.fpon.ca.



Women who are HPV negative at baseline (bottom line), have a significantly lower risk of developing CIN2+ over a 4 year period than women who test cytology negative (upper line) have after 2 years

Epidemiology and burden of disease continued from page 2

due to the risk of renal dysfunction. Myeloma patients on immunomodulatory drugs (i.e., lenalidomide, pomalidomide) are at increased risk of venous thromboembolism and require VTE prophylaxis while on treatment. Both disease related and treatment related cytopenias are common, and may be managed with treatment dose reductions, blood transfusions, and red cell or white cell growth factors. Myeloma patients are treated with relatively high doses of systemic steroids, and may present with problems such as hyperglycemia, dyspepsia, and mood or sleep changes. Myeloma patients are predisposed to neuropathy because of pathologic spine disease, m-protein related neuropathy (e.g. carpal tunnel syndrome), and drug induced peripheral neuropathy.

New Therapies

Several novel therapies have been approved in Canada this year. Carfilzomib and ixazomib are next generation proteasome inhibitors approved for relapsed myeloma, in combination therapies. Novel classes of drugs are becoming available. Elotuzumab and daratumumab are monoclonal antibodies directed at distinct targets, both approved recently for relapsed myeloma. Many other novel therapies are being investigated. Myeloma survival is highly variable, and with current treatments, has improved to 6 years or more for many patients (Kumar S, 2014). While it is unclear how new drugs will be optimally combined or sequenced in the future, novel treatments continue to improve the outlook for myeloma patients.

Contact Dr. Greg Dueck at gdueck@bccancer.bc.ca

Why you need a methadone license!

By Dr. Pippa Hawley FRCPC, Medical Leader, BC Cancer Agency's Pain & Symptom Management/Palliative Care Program

Dr. Pippa Hawley

Many of you will have helped care for some of our most difficult patients where methadone for cancer pain has provided very substantial benefits, especially for the increasing number living a long time with painful complications of cancer and its treatment. A recent audit of patients seen at the BC Cancer Agency's Pain and Symptom Management/Palliative Care clinics showed that a switch to methadone was successful in approximately three quarters of over 600 patients, with a very favourable safety profile. These patients were experiencing severe pain and had previously tried multiple analgesics.

Learn more about this topic at our November 19 Family Practice Oncology CME Day. Register at www.fpon.ca

Although a "Start Low-Go Slow" approach is very easy and safe to do in the community, switching patients to methadone can sometimes be complex, especially if the patient is already receiving high doses of other opioids. Physicians with limited pain management experience may understandably be reluctant to start patients on methadone without specialist support under these circumstances. However, once the switch to methadone has been completed and patients are stable, they will not require the services of a specialist clinic.

Authorization (or exemption) is required from Health Canada to prescribe methadone for analgesic purposes. Delegated to the College of Physicians and Surgeons of BC, the process to obtain this exemption is much easier than that required to prescribe methadone for opioid dependence. A new CME-accredited, free, online module is now available of which successful completion is considered by the College as entirely sufficient for acquiring your exemption.

The module demonstrates three key safety issues:

1. Methadone has a long half-life, but for pain usually needs to be taken every 8 hours.
2. Methadone has more drug interactions than other opioids.
3. Methadone can prolong the QT interval.

Practical tips are provided such as:

- Methadone is cheapest in 10 mg/ml solution, but the tablets (1, 5, 10 and 25 mg, scored), are safer and covered by Palliative Drug Benefits.
- Write "For Pain" on prescriptions to avoid misunderstandings at the pharmacy.
- Methadone liquid is well absorbed rectally and buccally/sublingually, with very similar bioavailability as when taken orally, so treatment can be continued when the oral route is not available.

Go to http://www.methadone4pain.ca/ and sign up now. Your patients will thank you for it!

Contact Dr. Pippa Hawley at phawley@bccancer.bc.ca

Corridor Consults

Introducing *Corridor Consults*, a new feature in our Journal, whereby primary care providers submit oncology questions and we seek and publish the answers for the benefit of all. Please send your query along to jennifer.wolfe@bccancer.bc.ca.

Here's our first shared Q&A:

Question: A 62 year old patient had a complete response to chemotherapy for Diffuse Large B-cell Lymphoma involving the right breast in 2012. Her sister had previous Breast Cancer and died at age 59 of Ovarian Cancer, with negative BRCA testing. The patient remains clinically well, and had a negative screening mammogram earlier this year. What would be your recommendation regarding ongoing breast screening?

Answer from Dr. Christine Wilson, Head Breast Imaging, BC Cancer Agency, Vancouver Centre:

The Policy and Procedure Manual of the Screening Mammography Program of BC states: "Occasionally, women are diagnosed with a lymphoma (a malignancy of the lymphatic system), during the investigation of an abnormal screening mammogram. In the absence of breast cancer, a woman with lymphoma is technically eligible to attend the SMP.

Because the natural history of lymphoma can be quite variable, the SMP will not routinely recall the woman for further screening mammography. For situations where the treatment of the lymphoma has been curative and is complete, active recall can be re-instated upon the request of the woman or her designated family physician." (Policy SB 090: Lymphoma: Eligibility).

Therefore this woman is eligible to attend SMP. She or her family physician needs to advise the screening program that she is now able to re-attend and the program will arrange for the appropriate recall reminders. Because of this woman's family history of a first degree family member with breast cancer she is eligible for annual recall.

For more information visit www.smpbc.ca or call 1-800-663-9203.

Incidental findings in oncology imaging

By Dr. Wan Wan Yap MBChB, FRCR, FRCPC, Radiologist, BC Cancer Agency Fraser Valley Centre

Dr. Wan Wan Yap

Incidental findings (IF) in radiology are common in both clinical practice and in research. The rapid rise in the usage of cross-sectional imaging in screening, diagnosing, staging and monitoring treatment of cancer patients contribute to the ongoing increase. Azadeh et al reviewed CT scans of prostate cancer patients in a 5-year period, and found 779 IF in 292 patients; 20.6% were significant and 5.9% were from synchronous malignancy[1].

The potential downside of detection of incidentalomas[1] include altering the incidence of diseases[2,3,4], potentially increasing patients' anxiety, creating dilemmas for treating clinicians, and cost implications[5] when working up these findings with further diagnostic tests. The pros include detecting early stage synchronous cancer and early metastases.

Incidental findings in oncology patients can be divided into three broad categories: metastases from a known primary, a second primary malignancy, or a benign lesion.

Below are examples of IFs in radiology:

Pulmonary embolism (PE): Malignancy increases the risks of thromboembolic disease. Large central PEs are generally treated with appropriate anticoagulation. The treatment of isolated sub-segmental PE can be controversial[6].

Thyroid nodules: A large autopsy study in 1955 found 50% of patients with no clinical history of thyroid disease have thyroid nodules. American College of Radiology guidelines[7] recommend a 3-tiered system in managing incidental thyroid nodules found on CT or MRI scans before recommending thyroid ultrasound:

- Category 1: suspicious CT or MRI features;
- Category 2: patients age <35 and size of 1cm; and
- Category 3: > 1.5cm for those older than 35 years old.

Pulmonary nodules: Fleichner's[9] criteria are used by radiologists to follow-up incidental non calcified pulmonary nodules. There are a few CT features that help distinguish benign from malignant nodules, but the majority of the nodules require follow-up imaging.

Khokar et al[8] found 42% of 151 patients with a history of extra-pulmonary malignancy have malignant nodules; 50% of these are second primary lung cancer and 44% are metastatic disease.

View the full webcast of this topic at www.fpon.ca – Continuing Medical Education

Adnexal lesions: Slanetz et al reviewed 3448 CT scans, and 5% had adnexal lesions. Of those, 69% had benign disease, 30% indeterminate lesions, and 1% malignant lesions. None of these represented primary ovarian cancer. There were 67 women with non-gynecological cancer. 46% of the adnexal lesions were considered to have benign disease, 48% undetermined lesions, and 3% have metastases to the ovaries[10]. Recommendation of the management of incidental adnexal lesions[11] include: CT appearances, menopausal state, and size.

IFs will continue to increase in clinical practice. A combination of utilising radiology guidelines and a multidisciplinary approach is the key to managing patients with these findings.

See References on page 13

Contact Dr. Wan Wan Yap at wanwanyap@gmail.com

Prostate cancer screening: the jury is still out?

By Dr. Mira Keyes MD FRCPC, Radiation Oncologist, Department of Radiation Oncology UBC, BC Cancer Agency Vancouver Centre

Dr. Mira Keyes

Prostate cancer (PCa) screening has been controversial for years, fueling confusion amongst patients and physicians alike. The purpose of screening is to reduce cancer mortality. The benefits should outweigh potential harms, including morbidity from investigations for false-positives, anxiety, and harm from over-diagnosis and especially over-treatment.

Prostate cancer is the most common non-skin cancer in Canadian men, and their third leading cause of cancer mortality. As most prostate cancers grow very slowly, 85% of men with PCa will die from other causes[1] hence; the discrepancy between very high prevalence and low mortality.

PSA is not an ideal screening test. True sensitivity and specificity are unknown, as most men with "normal" PSA will never undergo a biopsy. As many as 17-25% of men with PSA < 4 ng/ml (laboratory "normal") can have PCa, as compared to 25-30% with a PSA 4-10, and over 80% with PSA >20. Combining PSA and DRE increases the detection rate[2].

View the full webcast of this topic at www.fpon.ca – Continuing Medical Education

Effectiveness of PSA screening has been evaluated extensively in two large randomized controlled trials. The European Randomized Screening Trial (ERSPC) showed 20% PCa mortality reduction[3,4]. The Göteborg trial (part of ERSPC) with 14 year follow up, showed that only 293 men need screening to diagnose 12 and prevent one prostate cancer

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General practitioners in oncology – key to cancer care in BC and the Yukon

General Practitioners in Oncology (GPOs) are a unique resource, small in number yet mighty in impact when it comes to improving cancer care both in communities throughout BC and the Yukon and in BC Cancer Agency Centres (BCCA) and clinics. There are currently 101 GPOs practising in 37 different BC and the Yukon communities and the majority are family physician graduates of the Family Practice Oncology Network's GPO Training Program.

This program, now nationally and internationally recognized, launched in 2004 when rising cancer rates led the BCCA to focus efforts on enabling primary care to take on greater levels of responsibility for cancer care, including training family physicians to administer chemotherapy and provide all aspects of supportive care especially in rural communities. With cancer rates still rising (57% growth in diagnoses expected by 2030), the ability to provide high quality care for cancer patients as close to home as possible has never been more important.

Community GPOs eliminate the need for exhausting, often dangerous patient travel to larger centres. They also serve as oncology resources for local healthcare teams and many facilitate local oncology education opportunities. Community GPOs usually work within a BCCA Communities Oncology Network site accompanied by an oncology nurse, a pharmacist, and sometimes an internist and other professionals. They work in close collaboration with Agency oncologists.

Agency GPOs support the Centres' medical oncologists in providing patient care often specializing in specific tumour groups. Their expertise enables the oncologists to manage large case-loads as effectively and efficiently as possible and encourages a continuity of care that patients appreciate.

Following is insight from just a few of our hard-working 101. See the full listing of all 101 GPOs at www.fpon.ca.

Dr. Christopher Cunningham, Community GPO, Vernon

Dr. Christopher Cunningham

I work in my own full service family practice and part-time as a GPO. With two medical oncologists and three GPOs, we are a busy service and the demand for oncological care is great. The GPOs help facilitate cancer care for our patients and provide consultative services to our family physician colleagues.

I became a GPO after a career in emergency medicine. I wanted to maintain a sub-interest in an area of medicine that was in demand, and involved high acuity and constant challenge – the GPO role seemed to fit.

Unfortunately, the volume of cancer every physician sees is increasing, and the demand on our medical oncologists to see new patients is high. The GPOs in Vernon play an important role in managing oncology care and supporting our oncologists.

Dr. Sian Shuel, Agency GPO, Abbotsford, previously Community GPO, Campbell River

Dr. Sian Shuel

As an Agency GPO, I see patients on chemotherapy in the outpatient clinic at BCCA Abbotsford Centre. I also work in palliative care in Mission which includes being part of the team in hospice, the community and acute care.

My father is a GPO in Manitoba. He loves his work and modelled this as I was growing up. I wanted, and now have, a piece of that. I think that's how my interest in GP Oncology started. I completed training through the Family Practice Oncology Network right after residency, so this role been an important part of my practice since the beginning. It really is a privilege to be able to contribute to the care of people living with cancer.

I see patients for medical oncologists who are either away or their clinics are full and hope I am helping provide some relief to my colleagues at our busy Centre. My training and experience as a GPO have been a good start to allowing me to work on the palliative care team as well.

One of the most significant challenges is keeping up with the rapidly changing treatment options for the different tumour sites. Fortunately, BC has excellent continuing education opportunities and my colleagues are supportive and readily available.

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GPO positions at Centre for the North in Prince George

BC Cancer Agency Centre for the North is a full service cancer centre in Prince George which serves patients of the North. A team of GPOs work with Medical and Radiation Oncologists to provide this care both in Prince George and through telehealth to more distant communities. We are looking for more GPOs to join our team and would love to talk with you.

There are many advantages to living and working in Prince George. Professionally, there is a wonderful multidisciplinary team, an excellent community of physicians, and a tertiary care hospital on site, as well as the University of Northern BC and the Northern Medical Program which provide great opportunities for teaching and academic work. In addition, the community offers affordable housing and a broad range of activities, from outdoor pursuits such as skiing, hiking, and paddling, to live theatre and the symphony.

There are full time and sessional opportunities available and training is provided.
For further information, please contact Stacy Miller, Centre for the North, Medical Director, at smiller5@bccancer.bc.ca

Prostate cancer screening continued from page 5

death[5,6]. This is comparable to statistics for breast cancer screening[7].

The US randomized Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial[8,9] showed no mortality reduction with PSA screening. Recent evidence showed that over 90% of the men in the control arm had PSA testing anyway, which brings into question the validity of the trial[15]. Nonetheless, re-analysis of this trial looking at only men with minimal comorbidities, showed 50% PCa mortality reduction for healthy men in the screened group[10].

Based on initial publication on these 2 studies, the US and Canadian Preventive Services Task Force recommended against PCa screening[11,1].

In contrast, the Melbourne Expert Panel Consensus on PSA testing[12] emphasized the reduced incidence of metastatic PCa and increased cause specific survival in men age 50-69 who underwent screening, as well as the importance of uncoupling the diagnosis of PCa from the decision to treat. PSA testing was recommended only for men with › 10 year life expectancy regardless of age, and included a baseline PSA at age 40-50. This is based on the "Malmö study" which showed that a single PSA test at age 44-50 years predicts subsequent clinically diagnosed PCa. Men with PSA ‹0.6 at age ‹50 had a life time chance of PCa of only 10% vs. 80% if PSA was › 1.5[13].

BCCA recommends that men with › 10 years life expectancy who wish to be tested (after discussion of harms and benefits) start at age 55, and be tested every 4 years until they reach 70. A PSA › 3 ng/ml should be regarded as abnormal and, after verification, Urology consultation should be arranged[2]. My recommendation is to obtain a baseline PSA test. If the PSA is below the median for the age group, (‹ 0.6 at age 45-50 or ‹ 1.0 at age 60), one can assure the patient of a low life-time risk of PCa and continue with PSA testing every 4 years. For the remaining patients, baseline PSA can guide further discussion, interval PSA testing, or Urology referral.

The last question is how can one incorporate the complex discussion of benefits versus harms into a busy family practice? The most important information men need to know is this: PCa is very common and most are indolent. Most men diagnosed with PCa using PSA testing will not need immediate treatment, and will not die from it. The goal of PSA testing is to find aggressive PCa where early treatment can reduce the risk of dying from PCa. If men understand that treatment for aggressive disease is appropriate, and that active surveillance for indolent disease will be recommended, then PSA testing is a good option[14].

Lastly, recommendations against PSA screening are presently under re-consideration by the US Task Force. A thoughtful and balanced approach to PSA testing is critical.

See References on page 13

Contact Dr. Mira Keyes at mkeyes@bccancer.bc.ca

General practitioners in oncology continued from page 6

Dr. Wai Ling Dan, Community GPO, Comox

I work as a GPO in our hospital's Cancer Care Unit with 2 other GPOs and an internist. I also provide hospitalist care and am involved in Family Practice Residency teaching.

I decided to become a GPO when one of my colleagues asked me to join her team at the Cancer Care Clinic. I also had taken care of many cancer patients as part of my hospitalist work and had become interested in this field.

Dr. Wai Ling Dan

I would like to think that my role as a GPO has benefited my community. Our clinic is well coordinated, thanks to our excellent staff and we all cross cover for each other as needed. Our clinic and our hospital are very responsive to our cancer patients' needs and our oncologist colleagues in Victoria are always available for consultations, providing incredible feedback and guidance. I feel proud to be part of this community.

Next GPO training course begins February 20, 2017

The GPO Training Program is an eight-week course offering rural family physicians and newly hired Agency GPOs and Nurse Practitioners the opportunity to strengthen their oncology skills and knowledge. The program covers BC and the Yukon and includes a two-week introductory module held twice yearly at the Vancouver Cancer Centre followed by six weeks of flexibly scheduled clinical rotation at the Centre where participants' patients are referred. The program is certified by the College of Family Physicians of Canada and physicians may be eligible to receive a stipend and have their expenses covered. Full details at www.fpon.ca

Join us for GPO Case Study Day, November 18

GPOs take note! The Family Practice Oncology Network is presenting its first ever GPO Case Study Day to be held 11:30 a.m. – 5:00 p.m., November 18, at the Child & Family Research Institute at BC Children's/BC Women's Hospital, up to 4.5 Mainpro+ credits available. Don't miss this opportunity for 100% interactive learning with your colleagues including case-base discussions on:

- Venous Thromboembolism in Cancer Patients;
- Toxicities of the new Checkpoint Inhibition Immunotherapies; and
- Breast Cancer.

Space is limited so register today at www.fpon.ca and plan on attending our Family Practice Oncology CME Day at the same location on the day following, November 19, 2016.

Contact Jennifer Wolfe at Jennifer.wolfe@bccancer.bc.ca

Advance care planning: a thoughtful perspective

By Dr. Charlie Chen, Medical Director, University of British Columbia Year of Added Competency/Palliative Medicine Program

In my clinical experience as a palliative care physician and advance care planning educator and advocate, I still come across many colleagues – physicians and other clinicians – who believe that advance care planning is about "code status" and getting a DNR. Although determining a patient's preferences for life-prolongation with resuscitative measures is an important aspect of defining treatment goals, advance care planning involves much more than just completing a form.

View the full webcast of this topic at www.fpon.ca – Continuing Medical Education

Advance care planning is a process whereby a capable adult thinks and talks about their beliefs, values, fears, and wishes, and about the types of health care they wish to consent to or refuse in the future. Crucial conversations need to take place amongst the patient, his/her health care providers and family (or potential substitute decision makers) in advance of a situation when he/she is incapable of making health care decisions. This process in turn informs current and future medical care that the patient may receive and may result with the writing of informal (advance care plan) or formal/legal documents (Representation Agreements or Advance Directives).

Ideally, we would like all our patients to have considered the types of outcomes and quality of life that they would find worthwhile, if situations arise when they are significantly ill requiring intensive and potentially aggressive medical treatments. What makes life worthwhile? What gives them dignity? What robs them of dignity? Who do they want to help them make medical decisions? How much are they willing to go through to achieve their goals and avoid their fears in case time runs short?

A new approach to engage with our patients about their future health care is required. The Serious Illness Conversation Guide[1] is one such model, (see diagram) intended to be used in a structured way with all patients facing life-threatening or life-limiting illnesses, i.e. for any patient that you'd answer "no" to the question: Would I be surprised if this patient died in the next year? Questions include: What is your understanding of where you are at with your illness? What are your goals if your health worsens? What are your biggest fears or worries about your health and health care? If your condition worsens, how much are you willing to go through for the possibility of added time? If these conversations took place, our patients and their families will be better prepared for the more immediate medical decisions that need to be made.

In that acute care situation, instead of asking that binary "yes/no" question of whether or not they would want CPR – a question often decontextualized by the medical and situational/social circumstances – we ask patients instead these questions in a simple SPEAK mnemonic:

S – Do you know who would be your Substitute decision maker? Do you have a Representation Agreement?

P – What are your Preferences for decision-making and who helps you make medical decisions?

E – Are there any prior Expressed wishes about the types of medical treatments you would want or don't want? Do you have an advance care plan?

A – Have you completed an Advance Directive?

K – What other medical Knowledge do you need to do further planning and make medical decisions?

Primed with previously having had Serious Illness Conversations, the answers to these questions will go a long way to ensure that we provide the person-centred care that our patients deserve.

Contact Dr. Charlie Chen at charlie.chen@ubc.ca

Serious Illness Conversation Guide

PATIENT-TESTED LANGUAGE

SET UP

"I'm hoping we can talk about where things are with your illness and where they might be going — **is this okay**?"

ASSESS

"What is your **understanding** now of where you are with your illness?"

"How much **information** about what is likely to be ahead with your illness would you like from me?"

SHARE

Prognosis: "I'm worried that time may be short."
or "This may be as strong as you feel."

EXPLORE

"What are your most important **goals** if your health situation worsens?"

"What are your biggest **fears and worries** about the future with your health?"

"What gives you **strength** as you think about the future with your illness?"

"What **abilities** are so critical to your life that you can't imagine living without them?"

"If you become sicker, **how much are you willing to go through** for the possibility of gaining more time?"

"How much does your **family** know about your priorities and wishes?"

CLOSE

"**It sounds like** _____ is very important to you."

"Given your goals and priorities and what we know about your illness at this stage, **I recommend**..."

"**We're in this together**."

References

1. Bernacki, R. & Block, S. Communication about serious illness care goals: a review and synthesis of best practices. JAMA Intern Med. 2014 Dec;174(12):1994-2003.

Childhood cancer – an insightful overview

By Dr. Caron Strahlendorf, Division Head, Hematology/Oncology/Bone Marrow Transplantation, BC Children's Hospital

When we think of cancer we think of a disease of aging, but children get cancer too! Its occurrence in childhood is rare, and in British Columbia we see about 140 children under the age of 17 diagnosed each year. Despite being rare, it still accounts for the second most common cause of death in Canada. Improvement in treatments, supportive care, and the impact of international collaborative clinical trials have all contributed to dramatic increases in survival rates for most childhood cancers, with overall survival now approaching 83%.

Dr. Caron Strahlendorf

Pediatric malignancies pose diagnostic challenges. These are rare tumours and may be missed as one may not be thinking of a cancer diagnosis. Diagnosis is often based on symptoms and parents are usually the first to notice something is wrong with their child, but may be afraid to ask if it could be cancer. Occasionally, tumours are incidentally found on routine examination, as a good clinical examination may pick up a renal, liver, bone, soft tissue or adrenal mass. Masses may also incidentally be found on imaging performed for another reason. There is little ability to screen for childhood cancers and prevention therefore is difficult. The most common types of cancer seen in children are leukemia, lymphoma, brain tumours, bone, and soft tissue tumours in contrast to the common cancers of adults i.e. lung, breast, and prostate. Pediatric tumours are relatively undifferentiated or embryonal, and are often sarcomatous rather than carcinomatous.

If a child is suspected of having cancer, an urgent discussion with a pediatric oncologist at BC Children's Hospital (BCCH) should occur prior to further investigations being performed. It is here that expertise in treating children with cancer can be found and the appropriate diagnostic work up performed. Often children require general anaesthetic for procedures, and being in a pediatric centre helps in streamlining tests and minimizing sedations. Molecular and cytogenetic diagnostics are essential to define the subtype of tumours and to select appropriate therapy or targeted therapy. For this reason, it is essential that biopsies be performed in a pediatric tertiary care centre. This is especially important for soft tissue or bone tumours, where it is crucially important to select the biopsy site such that it will not affect the potential for future curative resection.

A cancer diagnosis evokes many images and emotions, and the diagnosis is the beginning of an emotional roller coaster for most families. A multi-disciplinary team is required to guide families through the initial shock and to help families navigate therapy with strength and hope. Every child requires a team approach to care: pediatric oncologists, specialized surgeons, pathologists, radiologists, radiation oncologists, specialized RN's and allied health professionals including but not limited to, education specialists, social workers, and psychologists. State-of the-art diagnostic work up and treatment is provided at pediatric tertiary care centres including the option of a clinical trial, offering the best chance of remission and cure. Once a diagnosis is established and treatment is started, depending on resources the care may remain at BCCH or be shared closer to home in consultation with the pediatrician or family doctor.

> Learn more about pediatric oncology at our November 19 Family Practice Oncology CME Day where Dr. Strahlendorf will be leading a case-based workshop. Register at www.fpon.ca

There are exceptions, but most childhood cancers tend to be fast growing and responsive to chemotherapy. Children are generally better able to recover from higher doses of chemotherapy allowing the use of intensive therapies, but this also leads to more short and long-term side effects. Today, it is estimated that 1 in 900 young adults in Canada is a cancer survivor and some will suffer significant treatment-related health and psychosocial problems. Many of these patients require lifelong follow-up to prevent or treat late effects of their treatment. These children are followed at BCCH post treatment until about the time they graduate from high school, or 5 years post diagnosis. They are then either transitioned to their GP or to the newly established the Late Effects Assessment and Follow-up Clinic (LEAF Clinic) at the BC Cancer Agency (see story on page 10).

Treating a child with cancer literally takes a village; from early diagnosis, providing care and compassion to the family and the patient, support through intense treatments including transplant, and still too often, the gentle grace at end-of life. Treating these children reminds us daily of what courage and bravery really mean, and reminds us of the privilege of being able to make a difference.

To refer a patient, call 604.875.2161 and ask for oncologist on call. Helpful links available with online edition at www.fpon.ca.

Contact Dr. Caron Strahlendorf at cstrahlendorf@cw.bc.ca

Helpful links on childhood cancer

Refer a patient

http://www.bcchildrens.ca/health-professionals/refer-a-patient/oncology-referral

About our services

http://www.bcchildrens.ca/our-services/clinics/cancer-blood-disorders

Resources for professionals

http://www.bcchildrens.ca/health-professionals/clinical-resources/oncology

Other useful websites

http://www.c17.ca/index.php

http://www.cancer.gov

https://childrensoncologygroup.org

Pediatric oncology education materials

http://www.pedsoncologyeducation.com

LEAF clinic opens for adult survivors of childhood cancer

The LEAF Clinic welcomed its first patients this month. Team members left to right: Dr. Karen Goddard, Medical Director, Beverley Biggs, Counselor, and Kimberley-Anne Reid, Nurse Practitioner.

Adult survivors of childhood cancer in BC now have the expert care and follow-up their health requires thanks to the establishment and opening this month of the BC Cancer Agency's Late Effects Assessment and Follow-up (LEAF) Clinic. The Clinic is part of the broader Adult Childhood Cancer Survivors Program at BC Cancer Agency, and is located in Vancouver, serving the entire province of BC. The Clinic is the result of substantial effort and commitment of many of these survivors and their families, as well as the medical teams who cared for them.

Dr. Karen Goddard, a radiation oncologist at both BC Children's Hospital and the BC Cancer Agency, Kimberley-Anne Reid, Nurse Practitioner at the LEAF Clinic, and Beverley Biggs, Counselor at the LEAF Clinic, share their insights here.

What is the need for this clinic on a population basis?

On average, 10,400 North American children will develop cancer each year and, thanks to multiple treatment modalities and improved care, over 80% will be long-term survivors. There are approximately 3,000 such survivors in BC diagnosed with childhood cancer since 1970 who are now adults. Depending on the treatment they received, these patients are at differing levels of risk for late-effects including physical problems such as organ damage and secondary tumours, and psychosocial problems such as depression, anxiety and neuro-cognitive challenges.

What are the plans to reach out to patients who may not know they are at risk?

The LEAF Clinic has started a comprehensive recall program and is attempting to connect with every adult childhood cancer survivor so that we can assess and monitor their health for late effects and provide the best care possible going forward. Primary care providers can play an important role in helping to identify and refer such patients whose records may not have been maintained, but for whom monitoring is still important.

What types of services will be provided at the LEAF Clinic?

The Clinic provides both medical and psychosocial support. Medically, each patient's past cancer diagnosis and treatment is reviewed and their health problems are assessed. Future risks are also discussed and a surveillance and treatment plan is prepared. Investigations are then ordered as needed with primary care providers and specialists receiving summary reports. The counselor meets with patients and assesses them for psychosocial issues. Advocacy and referrals are provided to community and health care providers along with advice to assist with future planning.

How can patients access services of the LEAF Clinic?

Patients can self-refer, be referred by their family physician, by BC Children's Hospital, the BC Cancer Agency, or by or an allied health/community professional. Patients must have been diagnosed at age 17 or under, be currently over age 18 , five years off of active treatment and discharged from BC Children's Hospital.

Contact the LEAF Clinic
Tel. 604.877.6070
ACCS@bccancer.bc.ca

http://www.bccancer.bc.ca/health-professionals/professional-resources/late-effects-assessment-follow-up

Watch also for the upcoming online CME-accredited module on Late Effects of Childhood Cancers.

Contact:

Kimberley-Anne Reid, kimberley-anne.reid@bccancer.bc.ca or Dr. Karen Goddard, kgoddard@bccancer.bc.ca for any questions about care of an adult childhood cancer survivor over 21 years of age

Avril Ullett, Program Leader, avril.ullett@bccancer.bc.ca for any questions about the Adult Childhood Cancer Survivors program

Dr. Sheila Pritchard, spritchard@cw.bc.ca or Marion Nelson mnelson@cw.bc.ca for any questions about care of an adult childhood cancer survivor under 21 years of age.

Message from the interim chair of the Family Practice Oncology Network

Dr. Catherine Clelland

The BC Cancer Agency is undergoing a leadership restructuring under the direction of the new President, Dr. Malcolm Moore. As part of this restructuring, the Family Practice Oncology Network (FPON) will become part of the new "Clinical Programs and Quality" portfolio and will become responsible for representing community family practice and primary care at the Agency's Medical Program Leadership Table. To support this expanded mandate, FPON will be working toward building relationships and supporting community networks of family physicians, both directly and through Divisions of Family Practice, as well as General Practitioners of Oncology (GPOs) to identify and better support their cancer care delivery needs. Improved communication between FPON and community GPOs and family physicians is essential for successful cancer care in communities.

Historically, the role of family practice and primary care in cancer management was primarily a supportive one. In recent years, it has become evident that the key to sustainability is a robust family practice and primary care system to provide effective prevention/screening, diagnosis and timely referral for treatment, as well as management through post treatment survivorship, and end-of-life care.

Since its inception in 2003, FPON has developed programs such as the GPO Training Program, Oncology CME Webcasts, Family Practice Oncology CME Day and community cancer workshops in partnership with UBC Continuing Professional Development. We've also published several cancer care guidelines for family physicians and the twice yearly *Journal of Family Practice Oncology*.

FPON will be undertaking a Strategic Planning Exercise over the next few months to determine how it will need to adapt and expand its work to support family practice and primary care to effectively fulfill the expectations of the Agency as part of this new mandate. We look forward to your input with suggestions on how we can accomplish this important task. Feedback can be sent to cathy.clelland@bccancer.bc.ca.

Message from the President of the BC Cancer Agency

"For a long time, the role of primary care in cancer was largely seen as peripheral, but as prevention, diagnosis, survivorship, and-end-of-life care assume greater importance in cancer policy, the defining characteristics of primary care become more important"
Lancet Oncology, 2015

This quote highlighted the publication of the *Commission on the Expanding Role of Primary Care in Cancer Control's report*. As we organize the BC Cancer Agency to provide a comprehensive cancer control program, it is timely to reflect on the key findings of that Commission, and how they should shape the role of primary care in the cancer system.

Dr. Malcolm Moore

Historically, cancer control focussed on treatment delivered in specialized centres and primary care was limited to a supportive role. In 2016, we consider cancer control through the broader lens of the patient journey extending from prevention and screening, through to diagnosis, treatment, survivorship and end-of life care. When we also consider that 42% of us will be diagnosed with cancer at some point, that there are 26,000 new cases diagnosed in BC annually, and that 5% of our population is living with a cancer diagnosis, it becomes clear that cancer control is no longer the domain of a few designated specialties, but a responsibility of everyone in the health system. In aspects of Cancer Control, like prevention, screening, diagnosis and survivorship, Primary Care ("first-contact, accessible, continued, comprehensive and coordinated care") is an essential element. It also plays an important role in the psychosocial support of cancer patients and provides a more holistic approach to care. There is also growing evidence of better cancer outcomes and more cost-effective care when Primary Care is well integrated and involved in Cancer Control.

We need to engage all Primary Care providers in BC in cancer control, and ensure that the patient experience and transitions are well integrated and 'seamless'. A typical family physician in BC will see 6-8 new diagnoses of cancer a year in their practice. They may see one case of the more common tumors annually, however, and, for the less common, only a few over their practice lifetime. To properly support Primary Care Providers, we need to have easily accessible diagnostic and information services; appropriate pathways around standardized disease management, and access to more specialized services and consultation when needed. We also need to consider proper reimbursement models for those who play a larger role in cancer care.

The Family Practice Oncology Network (FPON) has a long tradition of excellence in CME, training and guideline development. As we broaden the mandate of BCCA, I envision a much larger role for Primary Care. In the BCCA reorganization, Primary Care will sit at the Cancer Clinical Council table with Medical, Radiation and Surgical Oncology and take on larger responsibilities. We are initiating a search for a new leader of FPON and Primary Care and will rename this role *Provincial Lead-Primary Care* to reflect the expanded mandate and to align it with how we name our other key programs. I am excited about the prospects of better integration of Primary Care within BCCA, and look forward to working with the new leader and the Family Practice community as we move forward.

Contact Dr. Malcolm Moore at malcolm.moore@bccancer.bc.ca

An update on lung cancer screening in BC

By Dr. Stephen Lam MD, FRCPC, Distinguished Scientist, Department of Integrative Oncology, BC Cancer Agency Research Centre, Lisa Kan MSc, Senior Director, Cancer Screening, and Dr. John Spinelli PhD, Acting VP, Population Oncology, BC Cancer Agency

In March 2016, the Canadian Task Force on Preventive Health Care (Task Force) updated the screening guidelines for those at high risk for lung cancer. This was largely based on the positive finding of the National Lung Screening Trial that demonstrated a 20% reduction in lung cancer mortality with low-dose computed tomography (LDCT) screening compares to chest x-ray[1]. The Task Force recommends annual LDCT for up to three consecutive years for adults aged 55-74 years old with a 30 pack-year smoking history, who are currently smoking or who have quit within the last 15 years[2]. The use of chest x-ray with or without sputum cytology for lung cancer screening is not recommended. The Task Force emphasized the importance of delivering lung cancer screening in healthcare settings with expertise in early diagnosis and treatment of lung cancer, to improve the benefit to harm ratio of lung cancer screening through careful attention to recruitment criteria, proper management of lung nodules, provision of high-quality follow-up investigation and management, and the delivery of complementary smoking cessation interventions[2].

Dr. Stephen Lam

Currently, Ontario is the only province in Canada that has provided funding to initiate a pilot screening project which will start in 2017. In BC, the BC Cancer Agency has submitted a business case to the Ministry to implement lung cancer screening. Nationally, facilitated by the Canadian Partnership Against Cancer, the Pan-Canadian Lung Screening Network comprised of lung cancer experts, pathologists, radiologists, smoking cessation experts and policy makers, is working towards developing a set of lung cancer screening quality indicators for reporting at the national level and for sharing experiences across provinces.

Questions remain, such as optimal selection criteria for LDCT screening, screening interval, duration of screening, and follow-up of abnormal results. To address some of these questions, VGH-UBC Hospital Foundation has recently funded the VGH Early Lung Cancer Screening Pilot Program. The objectives of the study are to (a) compare the sensitivity of using the Task Force-like criteria versus a lung cancer risk prediction tool (PLCOm2012: Prostate, Lung, Colorectal, Ovarian Cancer risk prediction model) to select patients for screening; (b) examine the value of inclusion of genetic susceptibility and air pollution exposures for risk assessment; (c) develop and apply advanced computer analytic imaging tools to identify and characterize small lung nodules that are the most problematic in clinical management to determine their malignancy potential, with the goal of improving efficiency and accuracy of reading large number of screening CT scans as well as decreasing unnecessary imaging studies or biopsies; and (d) evaluate a new screening CT reporting format.

The study aims to recruit 2,000 individuals between 55 to 80 years of age who have an estimated 6-year lung cancer risk of ≥1.51% based on the PLCOm2012 risk prediction model, or ≥30 pack-years smoking history and were not previously diagnosed with lung cancer or suspected to have lung cancer based on symptoms, and who do not have other co-morbidities that would make them unlikely to benefit from screening. Due to logistical issues, the study is only open to residents in the Vancouver area. Further information can be obtained from 604.675.8088.

Contact Dr. Stephen Lam at slam2@bccancer.bc.ca

References

1. *The New England Journal of Medicine* 2011, 365(5):395-409.
2. *Canadian Medical Association Journal* 2016, Apr 5; 188(6):425-32.

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References

1. Bell N, Gorber S, Shane A, Joffres M, Singh H, Dickinson J, et al. Recommendations on screening for prostate cancer with the prostate-specific antigen test. Can Med Assoc J 2014;186(16):1225-1234.
2. BCCA Management Guidelines. http://www.bccancer.bc.ca/health-professionals/professional-resources/cancer-management-guidelines/genitourinary/prostate#Screening---Early-Detection.
3. Schroder FH, Hugosson J, Roobol MJ, Tammela TL, Ciatto S, Nelen V, et al. Screening and prostate-cancer mortality in a randomized European study. N Engl J Med 2009 Mar 26;360(13):1320-1328.
4. Schroder F, Hugosson J, Roobol M, Tammela T, Zappa M, Nelen V, et al. Screening and prostate cancer mortality: results of the European Randomised Study of Screening for Prostate Cancer (ERSPC) at 13 years of follow-up. Lancet 2014;384(9959):2027-2035.
5. Hugosson J, Carlsson S, Aus G, Bergdahl S, Khatami A, Lodding P, et al. Mortality results from the Goteborg randomised population-based prostate-cancer screening trial. Lancet Oncol 2010 Aug;11(8):725-732.
6. Loeb S, Vonesh EF, Metter EJ, Carter HB, Gann PH, Catalona WJ. What Is the True Number Needed to Screen and Treat to Save a Life With Prostate-Specific Antigen Testing? Journal of Clinical Oncology 2011;29(4):464-467.
7. Marmot MG, M G Marmot, D G Altman, D A Cameron, J A Dewar. The benefits and harms of breast cancer screening: an independent review. Br J Cancer 06 /11/2013;108(11):2205; 2205-2240; 2240.
8. Andriole GL, Crawford ED, Grubb RL,3rd, Buys SS, Chia D, Church TR, et al. Mortality results from a randomized prostate-cancer screening trial. N Engl J Med 2009 Mar 26;360(13):1310-1319.
9. Andriole GL, Crawford ED, Grubb RL, Buys SS, Chia D, Church TR, et al. Prostate Cancer Screening in the Randomized Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial: Mortality Results after 13 Years of Follow-up. J Natl Cancer Inst 2012;104(2):125-132.
10. Crawford ED, Grubb R,3rd, Black A, Andriole GL,Jr, Chen MH, Izmirlian G, et al. Comorbidity and mortality results from a randomized prostate cancer screening trial. J Clin Oncol 2011 Feb 1;29(4):355-361.
11. U.S. Preventive Services Task Force. http://www.ahrq.gov/clinic/uspstfix.htm.
12. Murphy DG, Ahlering T, Catalona WJ, Crowe H, Crowe J, Clarke N, et al. The Melbourne Consensus Statement on the early detection of prostate cancer: Melbourne Consensus Statement. BJU Int 2014;113(2):186-188.
13. Lilja H, Ulmert D, Bjork T, Becker C, Serio AM, Nilsson JA, et al. Long-term prediction of prostate cancer up to 25 years before diagnosis of prostate cancer using prostate kallikreins measured at age 44 to 50 years. J Clin Oncol 2007 Feb 1;25(4):431-436.
14. Vickers A, Edwards K, Cooperberg M, Mushlin A. A Simple Schema for Informed Decision Making About Prostate Cancer Screening. Ann Intern Med 2014;161(6):441-U101.
15. J. E. Shoag, S. Mittal,. Reevaluating PSA Testing Rates in the PLCO Trial. NEJM 2016;374(18):1796.

Incidental findings in oncology imaging continued from page 5

References

1. Elmi A, Tabatabaei S, Talab SS, Hedgire SS, Cao K, Harisinghani M. Incidental findings at initial imaging workup of patients with prostate cancer: clinical significance and outcomes. AJR Am J Roentgenol. 2012 Dec;199(6):1305-11.
2. Berland LL, Silverman SG, Gore RM, Mayo-Smith WW, Megibow AJ, Yee J, Brink JA, Baker ME, Federle MP, Foley WD, Francis IR, Herts BR, Israel GM, Krinsky G, Platt JF, Shuman WP, Taylor AJ. Managing incidental findings on abdominal CT: white paper of the ACR incidental findings committee. J Am Coll Radiol. 2010 Oct;7(10):754-73.
3. Hall WB, Truitt SG, Scheunemann LP, Shah SA, Rivera MP, Parker LA, Carson SS. The prevalence of clinically relevant incidental findings on chest computed tomographic angiograms ordered to diagnose pulmonary embolism. Arch Intern Med. 2009 Nov 23;169(21):1961-5.
4. Davies L, Welch HG. Increasing incidence of thyroid cancer in the United States, 1973-2002. JAMA. 2006 May 10;295(18):2164-7.
5. Cronan JJ. Thyroid nodules: is it time to turn off the US machines? Radiology. 2008 Jun;247(3):602-4. doi: 10.1148/radiol.2473072233.
6. Wiener RS, Schwartz LM, Woloshin S. When a test is too good: how CT pulmonary angiograms find pulmonary emboli that do not need to be found. BMJ. 2013 Jul 2;347:f3368.
7. Hoang JK, Langer JE, Middleton WD, Wu CC, Hammers LW, Cronan JJ, Tessler FN, Grant EG, Berland LL. Managing incidental thyroid nodules detected on imaging: white paper of the ACR Incidental Thyroid Findings Committee. J Am Coll Radiol. 2015 Feb;12(2):143-50.
8. Khokhar S, Vickers A, Moore MS, Mironov S, Stover DE, Feinstein MB. Significance of non-calcified pulmonary nodules in patients with extrapulmonary cancers. Thorax. 2006 Apr;61(4):331-6. Epub 2006 Feb 7.
9. MacMahon H, Austin JH, Gamsu G, Herold CJ, Jett JR, Naidich DP, Patz EF Jr, Swensen SJ; Fleischner Society. Guidelines for management of small pulmonary nodules detected on CT scans: a statement from the Fleischner Society. Radiology. 2005 Nov;237(2):395-400.
10. Slanetz PJ, Hahn PF, Hall DA, Mueller PR. The frequency and significance of adnexal lesions incidentally revealed by CT. AJR Am J Roentgenol. 1997 Mar;168(3):647-50.
11. Spencer JA, Gore RM. The adnexal incidentaloma: a practical approach to management. Cancer Imaging. 2011 Apr 25;11:48-51.