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INSIDE

THE PATIENT'S VOICE

From the Kitchen Table to the Clinic

Donna L. Berry PhD, RN, AOCN, FAAN
McCorkle Lecture 2010

This lectureship started in 1987 as a special tribute to Ruth McCorkle, a founding member of PSONS. This award is given in recognition of a member's significant contribution to cancer nursing. The chapter member is nominated by other chapter members and selected by the symposium committee.

The face-to-face time we spend with our patients in the clinic and the hospital is a small slice of life from their perspective. The cancer journey and experience is much larger than what we observe in our clinical settings. An individual's experience is, metaphorically, more relevant to what happens at the kitchen table than what happens in our institutions. In order to provide excellent navigation and guidance, we need to find out what that conversation and experience is all about and address the areas where help is needed.

In 1989 and 1990 when I was conducting my dissertation research, I was talking to a group of men and women who each had had a diagnosis of genitourinary cancer. I interviewed them about what it was like to go back to work after their cancer diagnosis. I expected to hear a lot of complaints and a lot of sadness. I heard some of that, but I also heard stories about the benefits of going back to work; how normal it made them feel. What an important lifeline their job was for them! And interestingly, the men who had prostate cancer reported that going back to work gave them an opportunity to listen to their colleagues and co-workers talk about their experiences with cancer. These conversations helped these men understand that they weren't alone.

During my research I heard other important things as I listened to their stories. One of the amazing things I heard was what a terrible and terrific decision it had been to choose a treatment.

Prostate cancer is somewhat unique from other cancers because we don't have large medical clinical trials that tell us what is the best treatment overall. As I talked to these gentlemen, I realized we didn't know what we didn't know about the decision-making process. What I did know was that prostate cancer is the most common cancer in men. And survival rates and complication rates of treatment are not easily interpreted because of the lack of randomized trials. They shared their stories about how they were going about making their decisions and sometimes there were rather unexpected decisions.

Here are some examples. "I was told by the doctor that I couldn't lift anything for six weeks." That was going to interfere with this gentleman's job. He didn't have six weeks of vacation or sick time and he had a very physical job. His job required that he lift buckets of dirty mop water and vacuum a very large library. He couldn't chose surgery and be out of work for six weeks.

Another man said, "The thought that I can cure it with surgery; that took precedence." So for him, having some assurance that removing all the cancer cells was important. "More important to me than getting you know—preserving sex—sex life." So

Continued on page 3

President's Message

Are You WILD About Oncology Nursing?

Cherie Tofthagen

Cherie Tofthagen
PSONS President

Today, May 16th, marks the closing ceremonies of the 35th Oncology Nursing Society Congress. This year's congress theme was "Wild about Oncology Nursing". A friend of mine texted me from the opening ceremonies. Her text read, "The Lion Sleeps Tonight" is playing really loud! These nurses are going crazy!" Ah, the beauty of Congress! There is nothing more energizing than being in a room with thousands of your closest friends who share your commitment, your passion, and your craziness for Oncology Nursing (and of course, singing "oh weem oh way…the lion sleeps tonight").

Oncology Nursing is truly a passion, a calling for many. Many of us "fell into" Oncology Nursing, but we all stick around for a reason. The reasons are many; a family member or friend who was diagnosed with cancer and has touched ones life, a special patient, a mentor who shared their fire for oncology, the list goes on. All it takes is someone to ask, "What ever possessed you to become an oncology nurse, it must be so depressing" to recall all the reasons that one is WILD about Oncology Nursing.

It's events such as Congress or our recent PSONS Symposium, where we reconnect with folks we haven't seen for awhile, that it all comes back to why we are WILD about Oncology Nursing! I was so impressed at Symposia this year, the caliber of the content of program, the science behind what we do, and I felt so proud to be a part of PSONS! I am impressed on a daily basis by the many accomplishments of our members. Many of our members have been highlighted in recent oncology publications for their stellar work. I feel equally proud of the everyday accomplishments our nurses provide at the chair side and bedside, to me, the most challenging places to be. I am touched by the response of our membership to our recent community service activities, again, one more reason to be WILD about PSONS!

Since this is my first contribution to the quarterly as PSONS president, I thought I'd tell you why I am WILD about Oncology Nursing. Like many of you, I was touched by cancer at an early age. My grandfather died of lung cancer when I was 9 years old. My grandfather was admitted to the hospital right before he passed away and since cancer was still such a mystery at that time, the hospital wouldn't allow me to say goodbye to him. His physician agreed to let my father lift me through the hospital room's bathroom window, where the physician pulled me through, and I was able to say goodbye to my grandfather. The compassion of my grandfather's physician left a permanent mark on my future. I was committed to change how cancer patients and their families were treated.

On a daily basis I am impressed with the advances that are being made in the treatment and management of patient's with cancer. An oncology nurse touches every step of a cancer patient's journey.

Continued on page 4

Editor's Notes

Symposium Continues to be a Success After 32 Years

Judy Petersen RN, MN, AOCN

As Liz White's recap of our annual Symposium and Cherie Tofthagen's President's Message both point out, our Symposium was a big success-*again*! Year after year we have planned and presented an outstanding program, for 32 years!

This issue, as is traditional, has several articles from our symposium speakers. So if you couldn't make the conference this issue will give you a taste of the high quality presentations.

Donna Berry, PSONS 2010 McCorkle Lecture recipient, challenged us in her talk and in her article to listen and respond to our patients individual needs. Seattle Cancer Care Alliance nurses have shared with me the positive impact her research and its outcomes have had at the SCCA. Dana Farber nurses we hope you know how lucky you are to have her leadership! We miss her! The other symposium articles show our diverse interest and influence in oncology nursing and health care. I heartily agree with Liz and Cherie, it was a great 2010 symposium!

The newsletter also contains, as usual, many things that show what a thriving active chapter we have. Enjoy this issue and the Summer!

P.S. We couldn't fit all the symposium articles submitted into this issue, so stay tuned for more in the fall issue!

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The Patient's Voice: Decisions Frequently Based on Personal Factors

Continued from page 1

he was not worried about impotence as a complication from either surgery or radiation.

Another man said, "I think the seed implant is good in my mind; the number one option at my age. And that's the first thing my business associates said. He said, at our age, seed implant is what you do."

And finally, one of the men told me, "I was going to tell the doctor that I wanted to go with the best they had. What would be the best for me?"

These interviews led me to the essence of the intervention I would eventually develop. Men were balancing their age and other personal factors against the side effects of different treatments. They would then come to a decision, sometimes based on what happened in 1960 to their uncle, or sometimes the decision may have revolved around what was going on at work. It was always about them; about their personal factors. The medical factors didn't help them with their decision in the same way.

In other cancer diagnoses, we also have rational people, sometimes making irrational decisions based on myths or lack of understanding. And this includes all kinds of decisions that need to be made; ranging from whether I take my medications at home, to when to place a parent who has progressive dementia in assisted living. These scenarios emerge where there's no one definitive clinical action for the clinician to recommend because it has to do with personal factors that are unique to the individual.

For people with healthcare concerns, (including all of us) there often are menus of options. Each option has its own set of potential outcomes and uncertainties. Informed consent and patient education materials primarily present only the medical facts for these options. They can't present to the patient their own personal factors. We provide reams of data and information about the treatment choice, and then we place the burden, or the opportunity, for the decision on the individual and their family. Once these treatment decisions are made, our patients may still be facing the greatest challenge of their lives, and all of it taking place in the greater context of their lives.

So I want to share more with you regarding what people go through in the cancer experience. Our patients become experts in their own symptoms and quality of life concerns. And it's our responsibility as clinicians to offer the opportunity for patients to report their experience. And yet we're faced with shrinking resources including fewer clinicians with limited time to spend with

patients. We are losing time for comprehensive interpersonal interactions with outpatients; yet that patient's experience, particularly reliably and systematically reported symptoms of treatment, is an essential component upon which our assessment, diagnosis and treatment plan are based.

So starting ten years ago, I and others were compelled to develop a very practical method in which we could gain information about symptoms and quality of life and quickly review this for the clinical visit. A method was needed for rapidly understanding what was problematic and what was not, so we could immediately focus on the problems without going through twenty questions to get to the problem. This would save some time while making sure our patients have the chance to report their symptoms and quality of life issues.

This solution was developed in 1999 with direct care oncology nurses at the University of Washington Cancer Center. We established a very dynamic research team of clinicians from three different disciplines, including informatics specialists, and graduate students which resulted in a randomized clinical trial conducted from 2004 to 2007. The purpose of that trial was to compare the clinical impact of having an electronic self-report assessment summary output available to the clinical team versus usual care. We tested this in all ambulatory services, focusing on whether or not we could make a difference in the communication of symptoms, therapies that were recommended and the referrals made for these problematic symptoms and quality of life concerns.

The patients used touch-screen computers that were easy to navigate and had very easy to use interfaces. We asked them questions about their symptoms and quality of life. We asked them to give numbers to a lot of things, but we also had a question like this, "Please type in the two most important concerns or issues that we should address first with you and anything else you want to tell us about which we haven't covered here." We wanted to know what was so bothersome to them that we should start with that issue. Within a second, the program could generate a report for the clinicians. In a sixty second glance, that clinician could know exactly what problems were important to the patient.

At the end of four years we had complete data for 590 patients and we had an audio recording of their visit with their clinicians. We scored those 590 audio recordings very carefully. We found that symptoms and quality of life concerns were addressed significantly more often when the clinicians had the summary and more often when their issues were at a moderate to severe level.

I'm going to give you some other examples of things that we discovered from this study. We found out that for transplant patients, financial issues were a very big concern. You can just hear this being talked about at the kitchen table,

Continued on page 5

PSONS Symposium Recap 2010

Liz White RN, MN, AOCN
Symposium co-chair

Excellence and Inovation in Challenging Times, the 32nd Annual PSONS Symposium got off to a wonderful start on April 9th and continued to dazzle participants on Saturday the 10th. Georgia Decker, ONS's Immediate Past President, provided information on what the new health care legislation may really mean to us in the coming years. Dr. Helene Stark's keynote address provided insight on those who choose to use the Death with Dignity Act and what health care providers need to know to educate patients on the subject. Our own Donna Berry returned from Boston to share her research on prostate cancer patients' symptom manifestations as the 2010 McCorkle lecturer. We ended the conference with a remembrance of our two members who died since we met in 2009. Patty Mulhern was the keynote speaker in 2009 and Rose Preston volunteered time regularly on the Symposium Planning Committee. Chaplain Jennifer Gill also acknowledged the daily losses that we face as oncology nurses.

Evaluations from the 110 participants on Friday and 134 participants on Saturday included raves about the speakers and the location including "It was the best symposium I have attended in year". The Lynnwood Convention Center provided easy freeway access and although it was farther north than we have ventured in the past, they provide us with exceptional serves and were able to accommodate the large number of last minute attendees that made for a few headaches and a long line at on Friday morning.

Good-sized contingencies joined us from both Wenatchee and Portland this year. We acknowledge the comment of those of you from the south sound about the extra travel time and will try to make the longer day on Friday. We will do a better job next year of getting hotel information out earlier for those of use who travel to attend our meeting in 2011. Hopefully, a new Web site will ease registration and also provide an easier way to download the slide presentations prior to the conference.

Thank you to all of you who volunteered to join the various committees for the coming year. The chapter couldn't do it with out you. I would especially like to thank Sam Li, Rashada Allen, Jan Imus, Julie Jensen, Bethany Kruge, Juanita Madison, Bonne Child, Chelsea Sears, Joseph Tariman, Debbie Nobel-Irons, Yeshearg Dagne with additional help from our exhibitor experts Mary Jo Sarver and Terri Pointer. It really does take a dozen-plus people to put on this event. If there are others who would care to join us please drop Sam Li a note at sam_li1@hotmail.com. Please Mark Your Calendars for the 33rd Annual Symposuim scheduled for March 25th and 26th, at the Lynnwood Convention Center. Hope to see you there!

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President's Message: I'm WILD About Oncology Nursing!

Continued from page 2

We now see many discussions regarding diagnosis of cancer being orchestrated by an oncology nurse navigator. Treatments are reviewed and monitored by oncology nurses in clinics and infusion rooms. Our hospital nurses manage some of the sickest and most critical of all our oncology patients. Oncology nurses are playing an integral role in survivorship, developing survivorship care plans and writing and participating in research on post-diagnosis issues affecting the cancer patient and their families. Oncology nurses have stepped out of tradition nursing roles and are making their mark in ways we would have never imagined!

I am WILD about PSONS! This organization has so much energy and passion for oncology nursing. PSONS offers many ways to foster our professional growth, both personally and as a chapter. Our symposium was a huge success this year. Liz White, Sam Li and their committee deserve special recognition for a job well done. The ability to receive educational credits at a local venue is becoming much more important as the landscape of our economy continues to move from under our feet.

I am WILD about our monthly educational meetings. The majority of these meetings are CE accredited and the topics are suggested by our membership making them timely and relevant. It is a great way to network and connect with other oncology nurses who share a common goal and passion. I'm WILDLY proud to be associated with an organization that recognizes the responsibility of being a good citizen with our commitment to community service.

Are YOU WILD about PSONS? I encourage you to consider what you can do for PSONS. It is definitely true that an organizations value and worth comes from the members it serves. When I asked a new member of the PSONS board why he chose to volunteer, he said to me, "Sooner or later, you have to give back to the organization in order for the organization to continue to succeed". Is it time for you to give back to the organization? PSONS has opportunities small and a little bigger than small! We still are looking to fill several chair positions. Many committees' could use additional folks to help. If you are interested, drop me a line at psonspresident@gmail.com. I'd love to hear from you.

I'm excited for the year ahead for our organization. I hope you share my enthusiasm for what PSONS can do for our membership, for our community, and mostly, for our patients. As your president, I'm open for suggestions on ways PSONS can better serve our membership. Feel free to contact any board member or myself if you have any suggestions. I challenge each and every member to be WILD about PSONS and consider what contribution they can make to ensure that PSONS continues to be the organization that it is today!

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The Patient's Voice: Patient Self Report of Problems Too Often Unresolved

Continued from page 3

can't you? For example: "Not only are we having to deal with cancer; my family has to go out and raise money just so I get treated for it."

We found very interesting dialogues in the audio-recordings regarding sleep disturbances. Of those 590 patients, 120 of them reported serious insomnia. They had said either "I have difficulty getting to sleep and staying asleep almost every night" or "It's almost impossible for me to get a good night's sleep." The majority, 81 of 120, had a conversation with their clinician during the visit and, for the most part, once the clinician talked to the patient the problem was addressed. For 27 of the 81, the clinician addressed concomitant symptoms, saying "let's see if we can work on your pain so it will help your sleep". A small percent (15%) of clinicians, (but a should-never-happen-percent) changed the subject when the patient brought it up during the clinic visit. And if you add that to the forty one visits in which the problem wasn't addressed by anyone at all, we find that about half of 120 patients with serious insomnia received no attention to the problem at all. What's wrong with this picture? These are the things that our patients are trying to deal with in their homes that are part of their whole experience of their cancer, but when they come to our clinic, we're not getting to their problems.

If we find out that we can impact and improve communication between patients, don't we want to bring the results of our research back to our clinical care? Don't we want to make a difference in our clinic and change the way we treat, assess, and see our patient? We're a practice discipline; it's just not good enough to only learn about these problems. What will it take to further promote appropriate clinician responses when patients self-report these troublesome symptoms?

Well, we need some enhanced training; specialized training, communication training and notably for psychosocial issues. For example, as a clinician are you comfortable listening to and responding to a patient discuss the significant impact their cancer and treatment has on sexual activities and interest? If you're not ready to talk about that, find somebody who is, or have the brochure ready. If all you can do is give the brochure, that is something and we haven't ignored it and we haven't changed the subject.

We need new research questions along these same lines. We've made a difference by giving the clinicians a summary of the patient's self reported symptoms, but now can our patients be prompted to not only raise the issue with their clinicians, but then to go on and insist that someone deals with the issue? Can we get our patients to engage in self-care issues by helping them understand their symptoms in between clinic visits and monitor their symptoms and the effect of what they're doing with self-care on their symptoms? And finally can we improve symptom outcomes? These questions make up our next clinical trial. This method I've described has been implemented at the Seattle Cancer Care Alliance and at Dana Farber where I am currently.

The bottom line of what this is all about: creating opportunities and an environment for individuals to fully express themselves regarding their healthcare issues and then fully participate in their own healthcare. We can do that by honoring their voice, by honoring their experiences; what they've been through outside of the clinic and engage them in telling us their stories. We can harness technology to do this that is efficient and cost-effective to reach every patient. My career in Seattle was profoundly rewarding because I was able to address the issues and develop interventions that work for our patients. It is that simple. Thank you to everyone who has been with me for these efforts!

■

Reducing Exposure to Hazardous Drugs: What Oncology Nurses Need to Know

Seth Eisenberg RN, OCN®

History

The potential risk from exposure to hazardous drugs was first observed in the late 1970s when patients who had been treated for cancer later developed secondary malignancies attributed to their treatment. [6] Evidence of unintended exposure dates back to 1979 when mutagenic changes were discovered in the urine of pharmacy personnel and nurses handling these agents. [7] Mounting evidence about the dangers of exposure first resulted in pharmacy guidelines entitled "ASHP technical assistance bulletin on handling cytotoxic drugs in hospitals. [10] Similar guidelines from OHSHA and ONS soon followed.

Detection

Over two dozen studies have described evidence of contamination in the hospital environment. Early tests relied upon the Ames assay, which measures mutagenic changes in urine. [8], [11], [12]. Other methods of assessing for exposure include measuring urinary thioethers, examining sister chromatid exchange and chromosomal aberrations, and testing both lymphocyte and buccal cell micronuclei. [14], [15], [16], [17] The workplace environment can be tested for the presence of specific antineoplastic agents although "wipe testing" samples require a specialized procedure and therefore cannot be processed in normal hospital laboratories. Drugs or their metabolites can also be identified in urine or blood by an analysis which allows quantitative measurement using gas chromatography-mass spectrometry, providing a measurement of drug level in the healthcare worker. [18]

What Are the Dangers?

Studies have identified both acute and long-term side effects. Valanis and colleagues identified acute symptoms

including nausea, skin irritation, hair loss. [27] Almost all of these long-term toxicities effect the reproductive system. A positive correlation has been inferred between unprotected healthcare workers and increased rates of stillborns, spontaneous abortions, ectopic pregnancies, congenital defects, infertility, and general disruption in menstrual cycles. [1], [19], [20], [21], [22], [23], [24], [25] In terms of risk potential, a recent survey of more than 3,000 oncology nurses showed that those who administer chemotherapy before and during pregnancy were 2.3 to 5 times more likely to give birth prematurely and have children with learning disabilities, especially language and motor problems. [26]. It is for this reason both the ONS Chemotherapy and Biotherapy Guidelines and Recommendations for Practice and the ASHP Guidelines for Handling Hazardous Drugs state that employers should allow employees who are pregnant, breast feeding or planning to become pregnant to be given non-chemotherapy-related duties during this timeframe. [4], [5] NIOSH is currently examining the issue of worker exposure during pregnancy, although no formal resolution has been reached. In addition to reproductive risks, several chemotherapeutic agents are known carcinogens, and correlations between exposure and increases in cancer have been made. [25], [28]

How Does Contamination Occur?

Contamination can arise from several sources and multiple points along the pathway from initial storage of the undiluted vials up to and including patient excretion. [3], [29], [30], [31] The exterior of chemotherapy vials themselves can arrive from distributors contaminated, and personnel handling them can unwittingly contaminate themselves and their surrounding environment.

The largest number of studies have explored contamination during drug preparation. This has resulted in recommendations for specific biologic safety cabinet (BSC) design and installation which vents aerosols and vapors outside of the work environment. BSCs alone cannot completely eliminate exposure, necessitating the use of personal protective equipment (PPE). [5] Multiple studies have documented contamination in and around the pharmacy preparation area. [6] Even more alarming,

Continued on page 7

Continued from page 6
the presence of chemotherapy has been found in the environment months after preparation [32], reinforcing the concept that spilled chemotherapy does not have a true half-life.

Once leaving the drug preparation area, contamination can occur at the patient's bedside while priming tubing or attempting to remove air bubbles. [6], [33] Any nurse who has accidentally spiked through the side of an IV bag or seen drops of fluid when disconnecting tubings is at risk for exposure. [1], [6] This exposure can lead to contamination of other parts of the environment, as chemotherapy has been detected at nursing stations. [34]

Chemotherapy can be inadvertently ingested if food and beverages have become contaminated by aerosolized particles. [6], [35] A study of nurses on two oncology units reported that staff felt ingestion of hazardous antineoplastic carried a low risk. More distressing, over a third admitted to eating or drinking in the areas where hazardous drugs were being prepared. [35] It should be noted that the ASHP and ONS Guidelines prohibit eating or drinking where chemotherapy is mixed or administered. [3], [5], [4]

Contamination can also occur from patient excreta, as some drugs are excreted unchanged in urine or feces. Here, the urine can become the vehicle for contaminating the immediate environment, a distant environment (e.g., dirty utility room), and unlicensed ancillary staff whose job may require emptying of urinals or bedside commodes. [3] There is no evidence to support double-flushing. However, it may be necessary in situations where the toilet is unable to clear all of the biologic waste in a single flush.

Barriers to Compliance

Compliance with national guidelines remains problematic in spite of the availability of evidence and number of organizations supporting these guidelines. Martin and Larson surveyed 500 office and ambulatory clinic nurses (n=268) and found that less than a third wore chemotherapy gowns during administration, although 94% wore some type of gloves. [48] In 2008, the ONS Chemotherapy SIG surveyed its membership regarding the use of PPE. Although nearly all respondents reported wearing some type of glove during administration, only half wore gowns (data on file with author).

Preventing Exposure to Hazardous drugs

No acceptable levels of exposure have been determined for any of the antineoplastic drugs. Therefore, tremendous energy has been placed on how to prevent exposure. Proper personal protective equipment is paramount and should not be negotiable. Minimal PPE consists of a chemotherapy-resistant gown and chemotherapy-resistant gloves which should be worn while handling, preparing, priming tubing, administering and disposing of chemotherapy or cleaning spills, and for handling of excreta from patients who are receiving therapy. [4]

Gowns

NIOSH, ONS, and ASHP guidelines recommend gowns which are chemotherapy resistant, made from a low permeability fabric such as polyethylene or vinyl, have a solid front with a back closure, elastic or knit cuffs, and be lint free. [3-5], [44] All nurses should be aware that lab coats or hospital isolation gowns do not provide adequate protection and therefore should not be used. Isolation gowns in particular have not been tested with chemotherapy.

There has been confusion regarding how long gowns can be worn and whether they can be used for multiple patients. Current ONS and NIOSH state the gowns should not be reused, which means once they have been removed they should be disposed of. [3, 4] [44] Using the same gown between patients does not necessarily present a risk to the nurse; however the gown should never be worn outside of the infusion area. This prevents potential contamination

Continued on page 8

Reducing Exposure: NIOSH Recommends Double-Gloving

Continued from page 7

from ending up in the staff lounge or clerical areas.

Gloves

Gloves tested for use with chemotherapy are recommended. Gloves which have not been tested may not afford any protection as hazardous drugs may be able to penetrate them. Nitrile is an excellent alternative to latex, and although generally thinner than other types, still affords adequate protection. [47] Aside from direct handling of chemotherapy, gloves should be worn when handling excreta. [44]

In their 2004 Alert, NIOSH recommended increasing protection by double-gloving, and ONS has supported this change. This recommendation is not a result of issues with glove integrity but to prevent skin contamination during glove removal. [3] When double-gloving, the inner glove should be placed under the sleeve of the gown, with the remaining glove worn over the cuff (to prevent contamination of skin on the wrist). All gloves should be changed at least every 30 minutes, when contaminated, and after each individual patient contact. [4], [44] Double-gloving remains controversial and has not found widespread acceptance.

Additional Equipment

Face shields or eye other protection should be available in situation where the risk of splashing might occur. Much confusion surrounds the use of masks and respirators. Paper surgical masks are not effective for chemotherapy. [3], [44] Respirators (which are distinctly different from masks) have been recommended during the cleaning of spills. However, both the N95 and N100 respirators are designed for particulate matter and not vapors. In order to trap vapors (as might be encountered in a large spill), a canister-type respirator is needed. Most institutions do not have these readily available, and complicating matters is the need for annual fit testing to ensure an air-tight seal. [3]

Closed System Transfer Devices (CSTDs)

CSTDs are designed to prevent the escape of drug into the environment during mixing and administration, and are recommended in the 2004 NIOSH Alert and 2007 NIOSH update. [3] [39]There are several commercial products available but space doesn't allow further discussion of this topic, but references can provide additional information. [32, 53], [54]

Unfortunately, no controlled, independent studies have been done to compare the efficacy of these CSTD products, and each have the advantages and disadvantages—including additional cost. However, CSTDs in general do add another layer of protection, much like having airbags in automobiles enhances safety. While they don't replace belts, they do help save lives.

Administration Issues

Administration of chemotherapy is dependent upon pumps and tubing setups which will vary from setting to setting. However, regardless of what system is used, the fundamental principal is to maintain an intact system once the chemotherapy leaves the pharmacy. In general, the use of secondary tubings which are back-primed with neutral solution at the bedside or in the pharmacy prior to spiking, prevent chemotherapy from dripping at the end of the tubing. Connecting secondary sets to a primary set (with neutral solution) allows for the tubing to be flushed when the dose has been given, thus eliminating the need to unspike the chemotherapy. [51] The addition of a CSTD at the end of the tubing provides further protection. It should be mentioned that several of the CSTD manufacturers also make special closed-system spikes which allow for flushing of primary tubing by using closed-system components above the drip chamber (and below the chemotherapy bag). This eliminates the need for secondary sets.

Nurses should wear gloves before touching the outside of a chemotherapy bag or syringe, due to the presence of possible surface contamination from when the drug was prepared. [4] In failing to use gloves, the nurse can suffer dermal absorption in addition to spreading the contamination to the pump and surrounding environment. [52] Pump contamination can then spread to the next nurse who may not be administering chemotherapy and is therefore ungloved. ONS recommends regular decontamination of all equipment (e.g., infusion pumps) involved with administration. [44] Although alcohol gels have become common place in most settings, hands should be washed with soap and water after removing PPE. Soap is needed to loosen any contamination, and water will rise it away.

Hazardous Drug Disposal

All chemotherapy waste (e.g., PPE, vials, syringes and tubing) should be placed in specialized hazardous waste containers, and PPE should be worn by all personnel coming in contact with chemotherapy and the containers. [6] The ideal container should have a lid designed to prevent aerosolization or inadvertent contamination when being accessed. Containers should be hard-sided if sharps (needles), vials or bottles are used, and contaminated supplies placed into sealable bags. [44]

Spills

Nurses who handle hazardous drugs should know where to access a spill kit, and designated employees who are responsible for managing hazardous drug spills must be properly trained. [61] Spill Kits can be purchased commercially or assembled by the individual institution. Kits should minimally contain:

- Goggles
- Caution Sign

Continued on page 9

Seemingly Innocent. Nearly Fatal.

What Every Oncology Nurse Needs to Know About Complementary Medicine and Integrative Care

Dan Labriola ND

Jane, a 29-year-old premenopausal patient, was diagnosed with stage II breast cancer six years ago. Her tumor was strongly estrogen receptor positive, HER2neu was not over expressed and the grade was moderate. *

Jane underwent a lumpectomy with negative lymph nodes. Radiation, chemotherapy and Tamoxifen followed. Her chance of recurrence was low; yet fourteen months later she had a recurrence near the incision. This time she underwent a bilateral mastectomy, followed by more chemotherapy and, this time, an aromatase inhibitor. Five months later, she experienced a sternal recurrence.

What Went Wrong?

Eight months into Jane's initial treatment, she saw a "holistic cancer expert" who prescribed an herbal plan mostly for her hot flashes. The herbs were checked out on a database suggested by a clinic pharmacist who found no reason to fear interference. She continued on the plan in conjunction with her conventional medical treatment until the sternal recurrence. At this point, she came to our clinic, and we immediately changed her program. Upon review we found her plan included strong phytoestrogens that were not properly identified in the referenced database.

Jane moved forward with a very complex and painful surgery, followed by the remaining allowable radiation and one more trial of chemotherapy. Since the last aromatase inhibitor had not worked, there was no plan to add another, and the prognosis was not good. Still, there was hope she would get perhaps another good year.

Later, she and her team decided to reinstitute an aromatase inhibitor on the theory that the supplemental estrogen had interfered with her response to treatment. Now, more than two years out, she is cancer-free with no hint of recurrence.

How Could This Happen?

Unfortunately, many supplements can interfere with conventional cancer treatments, if used incorrectly. More than likely, this is what happened in Jane's case with the phytoestrogens. Supplements can affect each patient differently, depending on concurrent conditions, and at any of the four pharmacokinetic stages. For example:

Continued on page 11

Reducing Exposure

Continued from page 8

- Dustpan and brush if working with bottles
- NIOSH approved canister respirator
- Appropriate institutional documentation

All personnel involved with cleaning a spill are required to wear PPE, which includes a gown, double gloves, respiratory protection, and a face shield.

Deactivation

There is conflicting evidence regarding the use of chemicals to deactivate hazardous drugs. Laboratory studies by Dorr demonstrated efficacy of calcium hypochlorite against several hazardous drugs. [60] Sodium hypochlorite has also been studied and shown to be effective against many but not all drugs. [56], [57], [62] These studies were performed using a 5.25% concentration, which is equivalent to undiluted household bleach. However, this concentration creates potentially toxic fumes when used indoors to treat a spill, thereby limiting its application outside of the laboratory setting.

A less toxic product is commercially available. SurfaceSafe™ (Hospira, Inc., Lake Forest, IL) uses two pads: one containing 2% sodium hypochlorite with detergent, and a second containing sodium thiosulfate. [5] The 2006 ASHP guidelines include its use for decontaminating BSCs but there is limited information regarding its efficacy for spills. Other chemicals should not be used, since toxic, unpredictable reactions may occur.

Detergent solutions have been advocated for their ability to dilute, lift and remove chemotherapy from a nonporous surface—although it should be noted they do not inactivate or neutralize hazardous drugs. In light of these inherent issues, using a product such as SurfaceSafe followed by a detergent solution would allow for neutralization and effective cleaning.

Bodily Exposure

Exposure can involve contamination of clothing, protective equipment, and/or skin and mucous membranes. Healthcare workers may be unknowingly exposed. [35] In clinical practice, many accidental exposures may go unnoticed or unreported. It is imperative that nurses be attentive to the possibility of exposure. The following steps should be taken in the event of a known exposure [5]:

- Immediately remove PPE and/or clothing that has been contaminated.
- Wash affected area(s) immediately with soap and water.
- The exposed individual should follow up with the employee health nurse for triage or go directly to the emergency room, as institutional policy directs.

Summary

Antineoplastic chemotherapy describes over four dozen hazardous drugs used for cancer treatment. These drugs have potentially serious side effects for nurses involved with preparation and administration. While not all of the dangers can be completely eliminated, steps can be taken to prevent exposure. Understanding these dangers and the preventative measures are crucial in ensuring protection against potentially acute and long-term consequences.

References

1. Connor, T.H., Hazardous anticancer drugs in health care: environmental exposure assessment.

Continued on page 14

PSONS Profile

Lenise Taylor
RN, MN, OCN

Hemotologic Malignancies/BMT Clinical Nurse Specialist
Seattle Cancer Care Alliance

Jody Stroh, MBA

When approached with the opportunity to be profiled Lenise's exuberance was hard to conceal. "It's an honor and a privilege" she says smiling as we get started. So many healthcare providers have a personal reason that drew them in and for Lenise that was the way it started as well.

At 14, Lenise lost her stepdad to incurable testicular cancer (a cancer now curable). During his battle, Lenise spent time watching the capable hands of the ICU nurses who cared for him. "They were great!" she remembers. After that pivotal event, whenever Lenise had a choice of classes in high school, she selected something that would help her become a nurse, much to the chagrin of others who wanted Lenise to broaden her focus.

After high school, Lenise attended nursing school at Pacific Lutheran University in Tacoma. PLU did not usually set up specialty senior practicums, but Lenise was adamant in her interest and a senior practicum was arranged with St. Joe's in Tacoma. In 1987, Lenise received her BS in nursing from PLU.

After graduation, Lenise took a job at Swedish which at the time was associated with the Fred Hutch. There she worked in the step down unit for BMT. In 1994 life presented many challenges for Lenise. First, she became a mom to daughter Jennifer (now 15) and second, she learned that her mother was diagnosed with lung cancer (her mother is now 16 years disease free!). Lastly, Swedish decided to restructure. During the restructuring of Swedish, her position now required that job to be masters prepared. Fortunately, St. Joseph's was looking for some experienced oncology nurses, so, back to the Oncology Unit where she had done her senior practicum. And just to make things fun, Lenise kept herself connected to the Hutch doing occasional per diem work at the same time. Talk about a life-work balance! But we will do that later.

In 1998 when Lenise's second child was born (Luke, now 11), she left St. Joe's and moved back to the Fred Hutchinson Cancer Research Center. Lenise worked about 70 % time both in the infusion and transplant clinic while raising her little ones. In 2001 Lenise cut back her Hutch hours to about 20% and worked half time in UW radiation oncology where she was a pediatric case manager. It was also at this time in 2002 that Lenise embarked on her masters in nursing program at the UW (thank heavens for tuition reimbursement!) By 2003 Lenise decided to stop working at the Hutch, keeping her part-time role at the UW and finishing her masters in nursing in 2006.

Lenise chuckles as she tells me that her new job (post completing her masters) at Swedish (in 2006) as the Oncology Clinical Nurse Specialist was remarkable for two reasons: 1) for the first time she was working full time Monday through Friday and 2) working 100% at one job.

Lenise Taylor RN, MN, OCN

Two years later and another move, Lenise is in her current role as Hematologic Malignancies/BMT CNS at the SCCA, splitting her time at UW and SCCA and loving it.

Would she do it all again? "Absolutely" says Lenise. "I love my career – I must because I drive to Seattle from Maple Valley everyday!" Her advice to other oncology nurses is "know that you are not stuck in what you are doing – just look at all my career changes!" Lenise reminds me that it is important to recognize burnout and to realize that you have so many options in nursing.

Her goals in life? "Help my kids grow up, and do my job well" says Lenise. What you don't know about Lenise is "I'm so disorganized – oh, should you put that in?" Now I chuckle and remind her that she is doing a lot of things right and maybe disorganized is a relative term.

Lenise is a long time PSONS member and currently Chair of PSONS Nursing Education Cooperative.

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Seemingly Innocent: Supplements Can Affect Each Patient Differently

Continued from page 9

- **Drug absorption** – Phenylalanine (as in aspartame) has been reported to affect absorption of oral Melphalan.
- **Distribution** – garlic can affect vasodilation and shunt drug distribution. Distribution also brings into play the subject of tumor target location. Kinetics for serum, tissue and CSF are all different and need to be considered individually.
- **Drug metabolism** – Hypericum (St. John's wort) can significantly affect cytochrome P450 metabolism and impact drug half-life.
- **Elimination** – depends on the three steps above, as well as hepatic and renal function, all of which can be altered by over-the-counter products.

How Did They Miss It?

Some treatment interactions are obvious, such as avoiding acupuncture for thrombocytopenic patients and exercising extraordinary care with manual manipulation on patients with bony metastases. Others are not. That's why it's important to consult reliable resources, with the emphasis on reliable!

For example, despite Internet and sales claims to the contrary, Vitamin E, ginkgo biloba, garlic and a host of other popular supplements can increase bleeding times. Antioxidants are not safe to administer concurrently with some forms of chemotherapy and radiation . Yet those searching out additional treatment options will find loads of information promoting such products without warnings for cancer patients, many from sources that have the aura of legitimacy.

In Jane's case, the provider who prescribed her combination of herbs most likely depended on the controversial sales arguments trying to represent these products as safe, while the database that was consulted was, like most, a literature compilation missing interactions that are not published.

What Can You, as an Oncology Nurse, Do About It?

Telling patients to stay away from natural therapies doesn't work. Reliable evidence shows they will self-treat and not admit it. What's more, many natural remedies can help, if used correctly. Here's what you can do:

- Be aware of the potential for interference between supplements and conventional treatments.
- Choose your information sources carefully. One is rarely enough.
- Feel free to call us for advice about specific combinations. We can frequently help free-of-charge.
- Check out the other resources listed at the end of this article.
- Be certain of product quality and safety. FDA oversight of supplements is minimal so we secure independent safety screening. We regularly share that information with oncology nurses.

What works clinically?

Over a 25-year period, our clinic has established protocols and strategies for determining what's safe and what works. These are based on:

- **Thorough, reliable information**. We use up-to-date pharmacology of both the supplement and the oncology treatment, and evaluate patient status including a complete review of systems and objective data. We draw on a library of several hundred textbooks, both modern and traditional, journals and electronic databases. Even with all this reference horsepower, we err on the side of caution when there is not adequate data to be confident about safety.
- **Guarding the "Protected Zone"** – a term coined in my book – which is the period when the drug or other cancer treatment is vulnerable to interference.

We determine the Protected Zone in 3 steps:

- Know where the cancer treatment is active (i.e. compartment distribution).
- Calculate how long the cancer treatment is active in that compartment of distribution.
- Confirm that the supplement considered is safe on its own.

- **Clinical objectives that make sense:**
  - Keep the patient as strong and healthy as possible in every way, starting with the patient's func-

Continued on page 12

Puget Sound Chapter of the Oncology Nursing Society

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Please utilize the following email addresses to contact board members. We definitely want your input and would love to hear from you! All board meetings are open to the membership.

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PSONS 2010 Scholarship Recipients

PSONS Annual Symposium and ONS Congress

Following are the winning applicants' narrative story for our chapter education scholarships. The purpose of the scholarships are to support a PSONS professional nurse who has demonstrated innovation in responding to challenges in practice that has made a difference for the patient/family, institution and/or fellow healthcare providers.

PSONS Annual Symposium Winner Mihkaila Wickline

Innovation in responding to the challenges of oncology practice? I innovated my life's challenges with oncology nursing practice! I traded in my laptop, lab coat and 9-5 workday for weekends and night shift and the ability to be home more with my 2 little girls... and am loving it!

As a CNS-turned-staff-nurse, I am privileged to work in an innovative setting delivering care to patients with hematologic malignancies and those undergoing hematopoietic stem cell transplantation. After being away from the bedside for 7 years, I have been thrilled to see how things have changed (i.e. "smart" pumps, fancier computerized charting, new therapies available for patients with AML, "interpreter phones" for conversing with non-English-speaking patients in the middle of the night) and how the important things (partnering with patients on their cancer journey and being witness to the suffering and hope that make this job so very real as well as enjoying my oncology nursing colleagues) have not changed a bit.

While my technical skills needed dusting off, now that I am re-oriented to staff nursing by the staff that I once oriented, I am enjoying this role with a new set of eyes. A few months ago, I was providing care for a population (HSCT outpatients). Now, I care for my 3 assigned patients per night who are undergoing HSCT or treatment for their hematologic malignancy. The ability to see the big picture that I bring from my CNS days and my understanding of the HSCT research agenda and our HSCT program at large has allowed me to approach the care of my individual patients in innovative ways. Solving patient problems, educating them about their disease and

Continued on page 13

Seemingly Innocent: Clinical Objectives That Make Sense

Continued from page 11

tional status and quality of life.
- Make certain that nothing is incorrectly interacting with treatment or disease. We look not only at our plan but also other treatments and strategies the patient may be using.
- Provide additional anticancer treatment. Patients are eager to actively affect their outcome and there are many natural medicine adjuncts that may have a positive additional benefit, without introducing risk. We recommend approxi-mately 65 natural medicine agents on a regular basis, including vitamins, minerals, botanicals, amino acids, essential fatty acids and enzymes. And we make certain each is independently tested for safety, which is not an FDA requirement.

- **Choose strategies that work**. Our clinic works with hundreds of conventional cancer programs around the globe. The complaints that we have seen treated most frequently and successfully in an oncology setting are:
  - **Digestion, absorption and eliminina tion** – including gas, bloating, dyspepsia, reflux, heartburn, nausea, constipation, diarrhea and continence.
  - **Female GU complaints** – hot flashes, dyspareunia and, dysuria. We do not recommend estrogenic herbs.
  - **Male GU complaints** – reduced urine flow, incontinence, dysuria and impotence.
  - **Musculoskeletal and neurological complaints** – Fibromyalgia, arthralgias, peripheral neuropathy, muscle cramps and restless leg syndrome.
  - **Rashes and outbreaks** – acne, eczema, psoriasis and other common breakouts, which are often pre-existing and become exacerbated by targeted therapies.
  - **Cardiovascular problems** – including hypertension.
  - **Respiratory complaints** – asthma, shortness of breath and chronic cough.
  - Other common problems: insomnia, fatigue, headaches, weight management, diet and lifestyle

Conclusion

There are many natural medicine treatments that deal safely and effectively with a broad range of complaints typically experienced by cancer patients. In many cases, such treatments are not duplicated in conventional medical pharmacology and may represent a solution or support with issues that would otherwise compromise patient status or treatment tolerance.

Oncology nursing is the principal line of defense for protecting patients from inadvertent harm. It is important to rigorously assess safety, and don't be afraid to ask for support if you're dealing with something new. Remember, many interactions are not obvious or intuitive.

**"Jane's" name and some details have been changed to protect her privacy.*

References & Other Resources

Labriola D, Livingston R. Possible interactions between dietary antioxidants and chemotherapy. Oncology (Williston Park). 1999 Jul;13(7):1003-8;
Bairati I, Meyer F, Jobin E, Gélinas M, Fortin A, Nabid A, Brochet F, Têtu B. Antioxidant vitamins supplementation and mortality: a randomized trial in head and neck cancer patients Int J Cancer. 2006 Nov 1;119(9):2221-4.
Labriola D, Complementary Cancer Therapies, Random House 2000

Editor's note: Doctor Labriola is the Director of Northwest Natural Health, a Specialty Care Clinic in Seattle Washington. He is in practice with 2 other fully accredited naturopathic doctors, Patrick Bufi ND and Kathleen Pratt ND. For further information you can contact their office by phone 206-784-9111.

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Continued from page 12

treatments, and care planning for individuals offers me the nightly opportunity to use my knowledge and creativity at the bedside. Current and past colleagues keep asking me about how this "innovation" in my life is going... I am quick to respond that I am having thrilled to be back in the trenches!

ONS Congress Winner Lisa Toomey

I have been an oncology nurse for 21 years. For the last 14 years I have risen to the challenge of practicing in a critical access hospital. The daily management and triaging of patients includes screening for serious side effects, managing uncontrolled symptoms and titration of pain medications based on protocols while supporting the emotional component of those living with advanced disease. My roles change throughout the day from case manager to primary care nurse, charge and triage. I advocate for resources in which availability is unique to our setting.

The challenge is to stay current in a specialty practice that continues to change exponentially. I push myself to find outside resources, share them with coworkers, and continue my education for OCN re-certification while serving as a resource for the community and the hospital.

Because of the small setting, I am able to establish repertoire with patients and family members. I recently cared for a patient with pancreatic cancer and six months after her death, I cared for her husband who had lung cancer. Their daughter still visits the clinic because of the intimate bond that developed between us.

I am PICC certified and developed the PICC protocols for our hospital and encouraged colleagues to pursue their certification to meet the needs of the community. Recently, I placed a line for a patient whose pain was uncontrolled with oral medications, so the pain medicine was changed to IV dilaudid.

Also, as a musician, I have performed for patients, caregivers and the community at Relay for Life, Remembrances of the Heart, Survivorship Day and the annual Cancer Art Show to aid in healing.

I am a nurse whose passion continues to heal both myself and others by weaving a tapestry of knowledge, compassion and music through all components of cancer care. I look forward to the opportunity to attend the ONS Congress in order to continue my expertise in nursing.

ONS Congress Winner Brenda Schlemlein

The Swedish Cancer Institute has many health care providers all trying to help cancer patients successfully navigate their cancer experience. The RN's in the Swedish Cancer Institute are very dedicated to providing the best care for their patients. Many times there is miscommunication between the Medical Oncology clinic nurses and the Chemo Infusion nurses regarding each others' roles. This lack of understanding caused frustration which prompted the managers to organize a couple of meetings between the two groups.

Swedish hospital encourages the Shared Leadership model of nurses handling nursing issues. Out of the group meeting the Role Clarity Committee was formed. Our first meeting was an eye opener as each nurse explained what she felt was her responsibility plus the physician and the clinical manager expectations of her. I was amazed at how little time the med-onc nurses had with their patients. Most of them did not seem to have much time for initial nursing assessment, pre-chemo teaching, side effect management or discharge instructions. They could see our problem trying to do discharge teaching without any clear instructions from the physician. It was surprising to hear how thoroughly the med-onc nurses read our progress notes and how they do not like our template notes.

The Role Clarity Committee works together to address our main concerns: initial nursing assessment, side effect management, and discharge instructions. Our new Beacon ordering system organized the patient so that after each visit, they receive a completed summary of all chemo, discharge medications, labs, and future appointments. This has been helpful in communication between the nurse and the patient.

Our committee is now working on getting the initial RN assessment accomplished. We are also brainstorming ideas for patient teaching by looking at other institutions, and also reaching out to the other health care workers in our institution, such as the social worker; patient navigator; and financial counselors.

Our Role Clarity committee is committed to continue searching for new and innovative ways to enhance communication to provide the best care possible for our patients.

ONS Congress Winner Bonne Child

Currently here at the Swedish Cancer Institute the population of cancer patients has changed not only in demographics but also in numbers. Physicians are coming up with new protocols all the time, using different drugs on old cancers and combining drugs that have not been combined before, especially with the new biological that have come to the forefront. Treatments have become more complex and longer in the outpatient setting. Staying on top of all the latest information is becoming more challenging than before.

Due to the longer treatments, chair space is at a premium, and the patient wait time in the lobby has increased. This decrease patient satisfaction and also increase the stress levels for the nurse and the front desk. One of the changes that I was involved in was creating an area where patients with shorter treatment time, could get in and out in a shorter time frame, opening the chairs for the longer treatments. We set up an area in our center called fast track. In the fast track area we take treatments that are usually less than an hour. Treatments that we see in this area are shots, Herceptin, Zometa, Navelbine, and CMF to name a few. We have also been able to hold flu clinics in this area for our patients. Our patient satisfaction has increased which also increased our RN satisfaction.

Oncology nursing is always on a fast track with new drugs and new treatment protocols, and more patients being seen in the outpatient setting. It becomes a struggle to stay on top of the game with out attending in-services or lectures on what's new and up coming. Attending ONS congress is such a wealth of information and having the privilege to go will only increase my knowledge.

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Reducing Exposure

Continued from page 9

Annals of the New York Academy of Sciences, 2006. 1076: p. 615-23.
2. Sessink, P.J. and R.P. Bos, Drugs hazardous to healthcare workers. Evaluation of methods for monitoring occupational exposure to cytostatic drugs. Drug Safety, 1999. 20(4): p. 347-59.
3. National Institute of Occupational Safety and Health: 2004. NIOSH alert: preventing occupational exposures to antineoplastic and other hazardous drugs in the health care setting. Washington, DC: US Department of Health and Human Services. Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH). 2004. p. 1-61.
4. Chemotherapy and Biotherapy Guidelines and Recommendations for Practice (2nd ed). 2nd ed, ed. J.M.W. M. Polovich, and L.O. Kelleher. 2005, Pittsburgh: ONS.
5. ASHP guidelines on handling hazardous drugs. American Journal of Health-System Pharmacy, 2006. 63: p. 1172-93.
6. Connor, T.H. and M.A. McDiarmid, Preventing occupational exposures to antineoplastic drugs in health care settings. CA A cancer journal for clinicians, 2006. 56(6): p. 354-65.
7. Falck, K., P. Grohn, M. Sorsa, H. Vainio, E. Heinonen, and L.R. Holsti, Mutagenicity in urine of nurses handling cytostatic drugs. Lancet, 1979. 1(8128): p. 1250-1.
8. Anderson, R.W., W.H. Puckett, Jr., W.J. Dana, T.V. Nguyen, J.C. Theiss, and T.S. Matney, Risk of handling injectable antineoplastic agents. American Journal of Hospital Pharmacy, 1982. 39(11): p. 1881-7.
9. Sotaniemi, E.A., S. Sutinen, A.J. Arranto, S. Sutinen, K.A. Sotaniemi, J. Lehtola, and R.O. Pelkonen, Liver damage in nurses handling cytostatic agents. Acta Med Scandanavica, 1983. 214(3): p. 181-9.
10. American Society of Hospital Pharmacists technical assistance bulletin on handling cytotoxic drugs in hospitals. American Journal of Health-System Pharmacy, 1985. 42: p. 131-137.
11. Nguyen, T.V., J.C. Theiss, and T.S. Matney, Exposure of pharmacy personnel to mutagenic antineoplastic drugs. Cancer Research, 1982. 42(11): p. 4792-6.
12. Labuhn, K., B. Valanis, R. Schoeny, K. Loveday, and W.M. Vollmer, Nurses' and pharmacists' exposure to antineoplastic drugs: findings from industrial hygiene scans and urine mutagenicity tests. Cancer Nursing, 1998. 21(2): p. 79-89.
13. Everson, R.B., J.M. Ratcliffe, P.M. Flack, D.M. Hoffman, and A.S. Watanabe, Detection of low levels of urinary mutagen excretion by chemotherapy workers which was not related to occupational drug exposures. Cancer Research, 1985. 45(12 Pt 1): p. 6487-97.
14. Baker, E.S. and T.H. Connor, Monitoring occupational exposure to cancer chemotherapy drugs. American Journal of Health-System Pharmacy, 1996. 53(22): p. 2713-23.
15. Newman, M.A., B.G. Valanis, R.S. Schoeny, and S.Q. Hee, Urinary biological monitoring markers of anticancer drug exposure in oncology nurses. Am Journal of Public Health, 1994. 84(5): p. 852-5.
16. DesRoches, P., Cytotoxic drug handlers–monitoring in the occupational health setting. American Association of Occupational Health Nurses, 2003. 51(3): p. 106-8.
17. Cavallo, D., C.L. Ursini, B. Perniconi, A.D. Francesco, M. Giglio, F.M. Rubino, A. Marinaccio, and S. Iavicoli, Evaluation of genotoxic effects induced by exposure to antineoplastic drugs in lymphocytes and exfoliated buccal cells of oncology nurses and pharmacy employees. Mutation Research, 2005. 587(1-2): p. 45-51.
18. Pethran, A., R. Schierl, K. Hauff, C.H. Grimm, K.S. Boos, and D. Nowak, Uptake of antineoplastic agents in pharmacy and hospital personnel. Part I: monitoring of urinary concentrations. International archives of occupational and environmental health, 2003. 76(1): p. 5-10.
19. Valanis, B., W.M. Vollmer, and P. Steele, Occupational exposure to antineoplastic agents: self-reported miscarriages and stillbirths among nurses and pharmacists. Journal of occupational and environmental medicine / American College of Occupational and Environmental Medicine, 1999. 41(8): p. 632-8.
20. Selevan, S.G., M.L. Lindbohm, R.W. Hornung, and K. Hemminki, A study of occupational exposure to antineoplastic drugs and fetal loss in nurses. The New England journal of medicine, 1985. 313(19): p. 1173-8.
21. Stucker, I., J.F. Caillard, R. Collin, M. Gout, D. Poyen, and D. Hemon, Risk of spontaneous abortion among nurses handling antineoplastic drugs. Scandinavian journal of work, environment & health, 1990. 16(2): p. 102-7.
22. Shortridge, L.A., G.K. Lemasters, B. Valanis, and V. Hertzberg, Menstrual cycles in nurses handling antineoplastic drugs. Cancer Nursing, 1995. 18(6): p. 439-44.
23. Saurel-Cubizolles, M.J. and N. Job-Spira, Ectopic pregnancy and occupational exposure to antineoplastic drugs. Lancet, 1993. 341(8854): p. 1169.
24. Valanis, B., W. Vollmer, K. Labuhn, and A. Glass, Occupational exposure to antineoplastic agents and self-reported infertility among nurses and pharmacists. Journal of occupational and environmental medicine / American College of Occupational and Environmental Medicine, 1997. 39(6): p. 574-80.
25. Martin, S., The adverse health effects of occupational exposure to hazardous drugs. Community Oncology, 2005. 2(5): p. 397-400.
26. Vanchieri, C., Health hazard to community practice nurses: the 'big worry'. Community Oncology, 2005. 2(3): p. 277-279.
27. Valanis, B.G., W.M. Vollmer, K.T. Labuhn, and A.G. Glass, Acute symptoms associated with antineoplastic drug handling among nurses. Cancer Nursing, 1993. 16(4): p. 288-95.
28. Blair, A., T. Zheng, A. Linos, P.A. Stewart, Y.W. Zhang, and K.P. Cantor, Occupation and leukemia: a population-based case-control study in Iowa and Minnesota. American Journal of Industrial Medicine, 2001. 40(1): p. 3-14.
29. Connor, T.H., R.W. Anderson, P.J. Sessink, L. Broadfield, and L.A. Power, Surface contamination with antineoplastic agents in six cancer treatment centers in Canada and the United States. American Journal of Health-System Pharmacy, 1999. 56(14): p. 1427-32.
30. Connor, T.H., P.J. Sessink, B.R. Harrison, J.R. Pretty, B.G. Peters, R.M. Alfaro, A. Bilos, G. Beckmann, M.R. Bing, L.M. Anderson, and R. Dechristoforo, Surface contamination of chemotherapy drug vials and evaluation of new vial-cleaning techniques: results of three studies. American Journal of Health-System Pharmacy, 2005. 62(5): p. 475-84.
31. Hedmer, M., A. Georgiadi, E.R. Bremberg, B.A. Jonsson, and S. Eksborg, Surface contamination of cyclophosphamide packaging and surface contamination with antineoplastic drugs in a hospital pharmacy in Sweden. The annals of occupational hygiene, 2005. 49(7): p. 629-37.
32. Connor, T.H., R.W. Anderson, P.J. Sessink, and S.M. Spivey, Effectiveness of a closed-system device in containing surface contamination with cyclophosphamide and ifosfamide in an i.v. admixture area. American Journal of Health-System Pharmacy, 2002. 59(1): p. 68-72.
33. Del Gaudio, D. and D. Menonna-Quinn, Chemotherapy. Potential occupational hazards. American Journal of Nursing, 1998. 98(11): p. 59-65.
34. McDevitt, J.J., P.S. Lees, and M.A. McDiarmid, Exposure of hospital pharmacists and nurses to antineoplastic agents. Journal of Occupational Medicine, 1993. 35(1): p. 57-60.
35. Ben-Ami, S., J. Shaham, S. Rabin, A. Melzer, and J. Ribak, The influence of nurses' knowledge, attitudes, and health beliefs on their safe behavior with cytotoxic drugs in Israel. Cancer Nursing, 2001. 24(3): p. 192-200.
36. McDonald, G.B., Review article: management of hepatic disease following haematopoietic cell transplant. Alimentary pharmacology & therapeutics, 2006. 24(3): p. 441-52.
37. Larson, R.R., M.B. Khazaeli, and H.K. Dillon, Monitoring method for surface contamination caused by selected antineoplastic agents. American Journal of Health-System Pharmacy, 2002. 59(3): p. 270-7.
38. Sessink, P.J., M.C. Van de Kerkhof, R.B. Anzion, J. Noordhoek, and R.P. Bos, Environmental contamination and assessment of exposure to antineoplastic agents by determination of cyclophosphamide in urine of exposed pharmacy technicians: is skin absorption an important exposure route? Archives of environmental health, 1994. 49(3): p. 165-9.
39. NIOSH: Medical Surveillance for Health Care Workers Exposed to Hazardous Drugs, Centers for disease control (CDC), 2007. p. 1-4.
40. Rekhadevi, P.V., N. Sailaja, M. Chandrasekhar, M. Mahboob, M.F. Rahman, and P. Grover, Genotoxicity assessment in oncology nurses handling anti-neoplastic drugs. Mutagenesis, 2007. 22(6): p. 395-401.
41. Sottani, C., G. Tranfo, P. Faranda, and C. Minoia, Highly sensitive high-performance liquid chromatography/selective reaction monitoring mass spectrometry method for the determination of cyclophosphamide and ifosfamide in urine of health care workers exposed to antineoplastic agents. Rapid Communications in Mass Spectrometry, 2005. 19(19): p. 2794-800.
42. Turci, R., C. Sottani, A. Ronchi, and C. Minoia, Biological monitoring of hospital personnel occupationally exposed to antineoplastic agents. Toxicology letters, 2002. 134(1-3): p. 57-64.
43. Harrison, B.R. and M.D. Kloos, Penetration and splash protection of six disposable gown materials against fifteen antineoplastic drugs. Journal of Oncology Pharmacy Practice, 1999. 5(2): p. 61-66.
44. Polovich, M., ed. Safe Handling of Hazardous Drugs. 2003, ONS: Pittsburgh. 56.
45. Connor, T.H., Permeability of nitrile rubber, latex, polyurethane, and neoprene gloves to 18 antineoplastic drugs. American Journal of Health-System Pharmacy, 1999. 56(23): p. 2450-3.

Continued on page 15

Continued from page 14

46. Klein, M., N. Lambov, N. Samev, and G. Carstens, Permeation of cytotoxic formulations through swatches from selected medical gloves. American Journal of Health-System Pharmacy, 2003. 60(10): p. 1006-11.

47. Gross, E.R. and D.F. Groce, An evaluation of nitrile gloves as an alternative tonatural rubber latex for handling chemotherapeutic agents. Journal of Oncology Pharmacy Practice, 1998. 4: p. 165-168.

48. Martin, S. and E. Larson, Chemotherapy-handling practices of outpatient and office-based oncology nurses. Oncology Nursing Forum, 2003. 30(4): p. 575-81.

49. Mahon, S.M., D.S. Casperson, S. Yackzan, S. Goodner, B. Hasse, J. Hawkins, J. Parham, C. Rimkus, M. Schlomer, and V. Witcher, Safe handling practices of cytotoxic drugs: the results of a chapter survey. Oncology Nursing Forum, 1994. 21(7): p. 1157-65.

50. Nieweg, R.M., M. de Boer, R.C. Dubbleman, H.E. Gall, G.M. Hesselman, P.C. Lenssen, L.W. van Maanen, P.W. Majoor, J. Ouwerkerk, and J.H. Slegt, Safe handling of antineoplastic drugs. Results of a survey. Cancer Nursing, 1994. 17(6): p. 501-11.

51. Vandenbroucke, J. and H. Robays, How to protect environment and employees against cytotoxic agents, the UZ Ghent experience. Journal of Oncology Pharmacy Practice, 2001. 6(4): p. 146–152.

52. Fransman, W., R. Vermeulen, and H. Kromhout, Occupational dermal exposure to cyclophosphamide in Dutch hospitals: a pilot study. The Annals of occupational hygiene, 2004. 48(3): p. 237-44.

53. Wick, C., M.H. Slawson, J.A. Jorgenson, and L.S. Tyler, Using a closed-system protective device to reduce personnel exposure to antineoplastic agents. American Journal of Health-System Pharmacy, 2003. 60(22): p. 2314-20.

54. Harrison, B.R., B.G. Peters, and M.R. Bing, Comparison of surface contamination with cyclophosphamide and fluorouracil using a closed-system drug transfer device versus standard preparation techniques. American Journal of Health-System Pharmacy, 2006. 63(18): p. 1736-44.

55. Johnson, E.G. and J.E. Janosik, Manufacturers' recommendations for handling spilled antineoplastic agents. American Journal of Hospital Pharmacy, 1989. 46(2): p. 318-9.

56. Benvenuto, J.A., Connor, T. H., Monteith, D. K., Laidlaw, J. L., Adams, S. C., Matney, T. S., et al. Degradation and inactivation of antitumor drugs. J Pharm Sci, 1993. 82(10), 988-991.

57. Castegnaro, M., De Meo, M., Laget, M., Michelon, J., Garren, L., Sportouch, M. H., et al, Chemical degradation of wastes of antineoplastic agents. 2: Six anthracyclines: idarubicin, doxorubicin, epirubicin, pirarubicin, aclarubicin, and daunorubicin. Int Arch Occup Environ Health, 1997. 70(6), 378-384.

58. Chemotherapy and biotherapy guidelines and recommendations for practice. (3rded.) 2009. Pittsburgh, PA: Oncology Nursing Society.

59. Connor, T. H., Shults, M., & Fraser, M. P. Determination of the vaporization of solutions of mutagenic antineoplastic agents at 23 and 37 degrees C using a desiccator technique. Mutat Res, 2000. 470(1), 85-92.

60. Dorr, R.T., & Alberts, D. S., Topical absorption and inactivation of cytotoxic anticancer agents in vitro. Cancer, 1992. 70(4 Suppl), 983-987.

61. OSHA, Code of federal regulations. Title 29, Labor: Subpart: Hazardous waste operations and emergency response: Hazardous materials (29CFR1910.120). 2004 Retrieved September 7, 2009 from.

62. Roberts, S., Khammo, N., McDonnell, G., & Sewell, G. J.,. Studies on the decontamination of surfaces exposed to cytotoxic drugs in chemotherapy workstations. J Oncol Pharm Pract, 2006. 12(2), 95-104.

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Welcome New Members

Member/Location

Debbie Noble-Irons
Virginia Mason Medical Center
Lynn Fosket
Olympic Medical Cancer Center

PSONS Treasurer's Report

First Quarter 2010

Quarter One	
A. Beginning Balance	**91,413.27**
Dues	3,596.26
Program Fees	45,185.00
Interest	
Donations/Grants	
Exhibit Fees	
Fundraising	25.00
Ads	140.00
B. Total Revenue	**48,946.26**
Expenses	
Printing	6,584.29
Postage/P.O. Box Rental	177.72
Supplies	
Meetings	
Equipment/Facilities/Catering	1,302.00
Travel	993.45
Chapter Fees	
Bank Charges	
Donations	
Office Support	2,137.50
Honorarium/Speakers	
Grants/Scholarships/Awards	
Telephone/Teleconference	89.97
Insurance	
Books/Subscriptions	
Website	119.40
Fundraiser	
Service Project	
Gifts	50.00
C. Total Expenses	**11,454.33**
D. Ending Balance This Period	**128,905.20**
1. Outstanding Deposits	
2. Outstanding Checks	36.50
Checking	128,941.70
Savings	1,198.39
Money Market/Certificates	37,058.15
TOTAL	**167,198.24**

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PUGET SOUND ONS

PSONS 2010 SERVICE PROJECTS

Northwest Harvest Expresses Surprise and Gratitude

Nancy Thompson, RN, *PSONS Community Service Coordinator*

In April, I dropped off 150 pounds of mixed food donations and $300 in donations from PSONS members collected at the PSONS Symposium and the PSONEC Fundamentals of Oncology. When I told the receptionist to make the receipt out to PSONS she looked up at me and said, "But Oncology Nurses give so much of themselves already!" I responded, "Yes, and they are some of the most generous people I know!"

Northwest Harvest's food bank on Cherry Street is the busiest food bank in the state, serving over 2,000 people on full-service days. Both times I have been there; I have been impressed with the service to both me as a donor and to the patrons picking up food. It is a large and efficiently run operation while still providing the warmth and human touch that its patrons so desperately need.

PSONS 3rd Quarter 2010 Service Project

Oakwood Elementary School Backpack/Supply Drive

Mindi Chouinard RN, BSN, OCN, *Project Coordinator*

After last year's amazing success, PSONS again will be collecting backpacks and school supplies for Oakwood Elementary School in Tacoma. Oakwood is a public school that serves a very needy population. Ninety-Five percent of children at Oakwood are on meal assistance. Between 10-15% have one or both parents in military service, some overseas. I was told last year by one of the fifth grade teachers that the majority of her students will arrive on the first day of school with nothing, not a single crayon or pencil and that she will use the majority of her classroom budget providing the necessary supplies.

Where to Donate

Supplies and donations can be delivered to: Nancy Thompson at Swedish Cancer Institute (3rd floor)
Mindi Chouinard (please email to arrange pick up melindac@amgen.com)

Last year we filled 20 backpacks with the necessary grade appropriate supplies and provided an abundance of extra paper, spiral notebooks, facial tissues, and glue sticks. This year we would like to increase our goal to 30 backpacks filled with the appropriate grade level supplies. Oakwood is thrilled to be the recipient of PSONS' generosity. They are very grateful that we have adopted their school and I look forward to exceeding their needs in the 2010-2011 school year. We will be collecting supplies through August 20, 2010 and will also accept donations with which to purchase supplies.

Thank you in advance for your generosity!