
THE FIFTH INTERNATIONAL CANCER CONTROL CONGRESS

SESSION 1: IMPROVING AND SUSTAINING PREVENTION IN CANCER CONTROL

SESSION 1: IMPROVING AND SUSTAINING PREVENTION IN CANCER CONTROL

GRAHAM A COLDITZ, INSTITUTE FOR PUBLIC HEALTH, AND SITEMAN CANCER CENTER, WASHINGTON UNIVERSITY IN ST LOUIS, USA; **EDUARDO CAZAP**, LATIN AMERICAN AND CARIBBEAN SOCIETY OF MEDICAL ONCOLOGY (SLACOM), BUENOS AIRES, ARGENTINA/UNION FOR INTERNATIONAL CANCER CONTROL (UICC), GENEVA, SWITZERLAND/NATIONAL CANCER INSTITUTE (INC), BUENOS AIRES, ARGENTINA; **JAVIER MANRIQUE-HINOJOSA**, INSTITUTO NACIONAL DE ENFERMEDADES NEOPLÁSICAS (INEN), LIMA, PERU; **NEAL PALAFOX**, DEPARTMENT OF FAMILY MEDICINE AND COMMUNITY HEALTH AND PACIFIC CANCER PROGRAMS, JOHN A BURNS SCHOOL OF MEDICINE, UNIVERSITY OF HAWAII, HONOLULU, USA; **GUSTAVO SARRIA BARDALES**, DEPARTAMENTO DE RADIOTERAPIA, INSTITUTO NACIONAL DE ENFERMEDADES NEOPLÁSICAS (INEN), LIMA, PERÚ; **ANDREAS ULLRICH**, WORLD HEALTH ORGANIZATION (WHO), GENEVA, SWITZERLAND; **ROXANA REGALADO**, NORMATIVIDAD, CALIDAD Y CONTROL, NACIONAL DE SERVICIOS ONCOLÓGICOS, INSTITUTO NACIONAL DE ENFERMEDADES NEOPLÁSICAS (INEN), LIMA, PERU; **FRANCISCO TEJADA**, DEPARTMENT OF EPIDEMIOLOGY AND PUBLIC HEALTH, UNIVERSITY OF MIAMI, MIAMI, USA; **MILTON SORIA HUMEREZ**, INSTITUTO NACIONAL DE LABORATORIOS EN SALUD, BOLIVIA; **CATHERINE G SUTCLIFFE**, DEPARTMENT OF EPIDEMIOLOGY, JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH, BALTIMORE, USA; **SIMON B SUTCLIFFE**, INTERNATIONAL CANCER CONTROL CONGRESS ASSOCIATION (ICCCA), VANCOUVER, CANADA AND **THE ICC-5 WORKING GROUP**

The rising global burden of noncommunicable diseases (NCDs), including cancer, has reoriented strategy from single disease plans to integrated strategies to control diseases sharing common causal risk factors. This evolving process encompasses the urgent need to move beyond planning to implementation; the requirement for integrated activity across public, population health and clinical medicine; the recognition of differing settings for cancer and NCD control in differing cultural and regional scenarios; and the need for collaboration across disciplines and sectors of practice and between agencies, institutions and nations as a means of learning, teaching and sharing how best to advance population disease control.

Session 1 of the Fifth International Cancer Control Congress (ICCC-5) focused on how individual and societal factors influence cancer and NCD risk, through two plenary presentations, a panel discussion and four interactive workshops: (1) individual and provider-level interventions to reduce cancer risk; (2) community-based interventions to reduce cancer risk; (3) policy-based interventions to reduce cancer risk; and (4) regional interventions to reduce the risk of cancer. Workshop discussions highlighted the importance of awareness and communication with health care providers. Many preventive services begin with primary care providers and their engagement and endorsement can reinforce broader prevention programmes delivered in the community. Beyond providers, involvement of all interested stakeholders in cancer prevention is necessary to reach all members of the society. When delivering prevention messages, tailoring these messages to the community is an important component for engaging society in prevention. To increase the efficiency of prevention programmes, evaluations that quantify aspects of the process, performance, and impact of prevention messages and interventions are required. For cancer prevention strategies to be successful, convening and making recommendations is necessary but insufficient. Implementation of actions, ensuring that capacity for response is appropriate and measuring and reporting interventional programme development and delivery is essential for effective response.

Key words: cancer prevention, global health, cancer control, Latin America

Introduction

Graham A Colditz, Washington University in St Louis, USA and Eduardo Cazap, SLACOM

Population-based cancer control and the need for national cancer control plans has become generally accepted (1, 2), and more recently, this concept has evolved to the more comprehensive and combined strategy of cancer and noncommunicable diseases (NCDs) (2). The clear demonstration of this evolution has been the unanimous approval of the Political Document at the United Nations High Level Meeting on NCDs in September 2011 (3, 4).

The world is facing a new stage of this evolving process: the urgent need to move beyond planning to implementation; the requirement for integrated activity across public, population health and clinical medicine and the recognition of differing settings for cancer and NCD control in differing cultural and regional scenarios (5). There is also a necessity for collaboration across disciplines and sectors of practice and between agencies, institutions and nations as a means of learning, teaching and sharing how best to advance population disease control (6).

The purpose of this session entitled “Improving and sustaining prevention in cancer control” was to discuss the individual and societal factors that influence cancer and NCD risk (5, 7). The discussion was placed in the context of their relative contribution to the burden of disease and the time frame for prevention benefits (8). The questions discussed were:

- What are the individual and societal factors that influence cancer and NCD risk?
- How can we intervene?
- What are the barriers to implementing interventions?
- What lessons can we learn from both successful and failed strategies?

Methodology and objectives

ICCC-5 Session 1 on “Improving and sustaining prevention in cancer control” comprised two plenary presentations and a panel discussion to provide an overview of the subject matter as a means of preparing Congress participants for participating in four, small group, interactive workshops on relevant topics to be addressed in greater depth. Selected abstracts providing particular insights into the topic area were presented orally by the authors in each of the workshops. Workshop leaders were encouraged to conclude their workshops with a brief set of prioritized recommendations to identify the key directions for further development of interventional activities beyond this Congress.

The objective of this session was to explore the individual and societal factors that influence cancer and NCD risk. The following four issues were selected for in-depth discussion in the workshops:

- Individual and provider-level interventions for reducing cancer risk.
- Community-based interventions for reducing cancer risk.
- Policy-based interventions for reducing cancer risk.
- Regional interventions for reducing cancer risk.

Plenary presentations

1. Cancer and NCD prevention from a global perspective

Graham A Colditz, Washington University in St Louis, USA

The burden of cancer is predominantly experienced in low- and middle-income countries (9). Changing patterns of fertility and economic development add to the rising age-specific incidence of cancer with rapid increases in breast cancer in many countries. In fact, breast cancer accounts for 25% of all cancer diagnoses worldwide among women in 2012 (9). To address the global burden of cancer, we must overcome scepticism that cancer can be prevented. Successful prevention interventions require the broader community and population health perspectives, and must sustain individual behaviour changes in the context of the health care system and broader societal influences on behaviour and health.

While more than 50% of cancer is preventable (8), the burden due to infectious causes is greater in low- and middle-income countries (10). Obesity, lack of physical activity, poor diet and smoking cigarettes remain the dominant causes of cancer and other chronic diseases including diabetes and heart disease. Prevention must operate across many sectors to achieve population health benefits as is evident for obesity (11,12). WHO priorities for population-wide interventions offer the best approaches to sustain improvements in health (5). These include: reducing tobacco use (a WHO best buy (13)); promoting physical activity; reducing harmful alcohol use; promoting healthy diets; and specific cancer-focused strategies that include Hepatitis B vaccine (a best buy); HPV vaccine; and cervical cancer screening.

2. Esperanza: The population cancer control plan in Peru

Jose Del Carmen, Vice Minister of Health, Ministry of Health, Peru

The impact of cancer on the expectations and quality of life of

the population can be addressed at multiple levels, including public policy, the environment, communities, health care organizations, professional teams, families and individuals. Strategically, intervening at the interfaces between the different levels has the potential to produce greater effects on population health than working on one level.

Each year an estimated 45,000 new cases of cancer occur in Peru and 75% of them present at an advanced stage. To address this and other challenges, the country is promoting a process of health reform, aimed at achieving universal coverage protection and health care for the entire population. Progress on the framework of “universal insurance” began in 2009 and has successfully extended health protection coverage to an estimated 12 million Peruvians living in poverty whose health care is funded with state resources and provided in public hospitals. In addition, the “List of diseases at high cost”, which includes treatment for cancer of the cervix, breast, colon, stomach, prostate, leukaemias and lymphomas (plus CKD), was approved in 2012, thereby optimizing funding from Public Security (SIS) for cancer treatment through extraordinary coverage procedures or special cases.

This development, however, produced limited results due to the lack of adequately equipped and staffed services across the dispersed rural areas of the country. We therefore decided to initiate a process of health reform to move the line of attack from the tertiary hospitals to primary care facilities to encourage the active participation of the general population in promoting healthy lifestyles for the prevention of cancer and other chronic diseases.

In this context, the Esperanza Plan was developed, with the aim of improving the geographical and cultural access to the supply of services in health promotion, prevention, early diagnosis, final diagnosis, staging and recuperative and palliative treatment of cancer for the entire population. In addition, the Plan aims to achieve a progressive and sustained increase in the response capacity of the public sector by investing in trained human resources, infrastructure, equipment and supplies, and seeks to improve economic sustainability by joining the public security and the allocation of financial resources for the Plan. So far this year, we have managed to train 661 professionals in primary and secondary cancer prevention, 656,163 people have been screened, 117,498 families have been educated about cancer risks in 18 regions of the country and 4,320,143 people have been exposed to cancer prevention across the country.

3. Panel discussion: Linking cancer, NCD control plans and communities

Andreas Ullrich, WHO; Edgar Amorin, COLAT; Miguel Garavito, FISSAL; Tatiana Vidaurre Rojas, INEN; Francisco Tejada, University of Miami

In May 2013, the Global Action Plan for NCDs was adopted at the Sixty-sixth World Health Assembly and defined priorities for prevention and control for the next seven years (5). We now have a global agenda for cancer and other NCDs that will challenge the health community to collaborate and integrate their individual agendas and plans. The plan is driven by the fact that there are many common risk factors for NCDs, including cancer, and we therefore have the opportunity to synergize our efforts for prevention and control. This will require members of the different disease and risk factor communities to collaborate and learn from each other. For example, much work has been done in the tobacco community around laws and regulations and prevention, leading to the development and adoption of the WHO Framework Convention on Tobacco Control (14). This approach has succeeded in changing norms surrounding smoking in many countries and may provide insights that could be applied to control other risk factors. Tackling NCDs will require a multisectoral approach involving all sectors of society, including governments, civil society, industry, academia and nongovernmental organizations. Within government, all departments will need to be involved and health will need to be considered in all policies. Within academia, methods for training medical professionals will need to evolve to adapt to the changing paradigm for NCD prevention and control, with more emphasis on primary and community care and fostering health rather than treating disease. Ultimately we need to educate the population and communities around health issues as long-term success in preventing disease requires community engagement.

Workshops

1. Individual and provider-level interventions to reduce cancer risk

Graham A Colditz, Washington University in St Louis, USA and Javier Manrique-Hinojosa, Instituto Nacional de Enfermedades Neoplásicas (INEN), Lima, Peru

While many cancer prevention endeavours focus on aspects of behaviour change at the individual or community level, shared experiences across groups can reinforce lessons learned and opportunities to deliver a more integrated approach to prevention. Provider-level interventions can both

reinforce prevention messages and increase attention to prevention among those receiving care. Providers serve as opinion leaders in many communities and engaging them in prevention magnifies the potential impact of prevention messages. Examples from many countries can inform strategies to increase the reach of prevention. This workshop aimed to share experiences and speed the adoption of strategies that would harness the power of prevention.

Abstract 1: A professional education programme on cervical cancer prevention: The results of an e-learning experience

Francisco J Bosch, José M Borrás, Patricia Pérez, Assumpta Company, Ana Sedano and Mireia Montserrat, Institut Català d'Oncologia (ICO), L'Hospitalet de Llobregat, Barcelona, Spain

Background

Cervical cancer remains the second most important cancer in women worldwide and the cancer priority in most developing countries. It is largely preventable and, if diagnosed and treated at an early stage, is a highly curable disease. In the absence of efficient preventive action, it is usually diagnosed in advanced stages and results in a major cause of death among young women. The advent of HPV vaccines and the impact of screening represent a milestone in our opportunities for prevention. The introduction of a new vaccine targeting women worldwide requires that literally tens of thousands of health professionals and decision-makers understand its value and mode of use. A virtual course has been designed to provide such information to health professionals worldwide without costs for the participant.

Objectives

- ▶ Create and promote an e-learning educational programme on HPV and cervical cancer epidemiology and prevention suitable for a wide audience of health professionals;
- ▶ Create an international network of professionals qualified as key trainers in cervical cancer prevention in critical countries.

Results

The Project was supported by various unrestricted educational grants. The technological platform and the scientific and pedagogical methodology were provided by e-oncología, the e-learning platform from Catalan Institute of Oncology (ICO), Barcelona, Spain.

The output was an 18-hour distance-learning course in Spanish, English, French and Russian. The contents are largely based on the ICO HPV Monograph series. The

programme was scientifically validated and endorsed by FIGO, UICC, IAEA, IARC and WHO, and is being freely distributed. Since 2011, more than 8,000 professionals worldwide have registered for the course, a pool of 32 international tutors have been certified and acted as course professors in their own environment, and 70% of the students have been certified.

Conclusions

E-learning methodology with tutorial support can be a good and affordable solution to the medical education in low-income countries and the contents are easily adapted to each country.

Abstract 2: Cancer Prevention Center: Nine years of experience in health promotion, cancer prevention and early detection

Alice M Zelmanowicz, Dayane A Cicolella and Livia L Campo Irmandade Santa Casa de Misericórdia de Porto Alegre, Porto Alegre, RS, Brazil

Cancer is a public health problem due to the high death rates and incidence. The Brazilian southern region shows the highest rates of new cases. Prostate and breast cancers are the most frequent. Preventive activities are necessary for cancer control. In 2004, the Center for Cancer Prevention (CPC) at Irmandade Santa Casa de Misericórdia de Porto Alegre was created. The CPC is a medical complex of seven hospitals with multiple medical specialties. Through actions towards prevention, education and health promotion, CPC offers assistance and raises people's awareness about individual health. It promotes actions related to changes in attitude and habits that act as precursors to sickness. Each medical specialty develops specific actions and interventions towards the risk factors that act in the health-disease process. Currently the multidisciplinary team is formed by 37 areas: gynaecology, geriatrics, dermatology, mastology, endocrinology, cancerology, head and neck surgery, oncology surgery, urology, coloproctology, gastroenterology, genetics, nephrology, fertility preservation gynaecology, stomatology, nursing, nutrition and psychology. It has an area for health education where there is an exhibition of educational materials in the waiting area. The Center serves an average of 700 outpatients per month with a 98% satisfaction rate. More than 37,200 consultations have been carried out (2005–2013). Lectures are offered to the community, encouraging a change in attitude. Annually a bigger event celebrates the National Day for Cancer Prevention (27 November). It is estimated that 28,000 people have been reached by the educational actions carried out by the CPC.

Different means of communication are used. During these nine years, a lot was invested in the production and distribution of more than 100,000 leaflets (according to the annual budgets). It is considered that actions developed by the CPC contribute to the authentication of a healthy lifestyle as a way to impact on cancer incidence and mortality in our milieu.

Abstract 3: Tips and lessons learned from an established population health-based primary cancer prevention programme
Sonia Lamont, British Columbia Cancer Agency, Vancouver, BC, Canada

The evidence base shows that more than 50% of cancers are preventable by implementing the healthy lifestyle choices that are known about today. But what might a primary cancer prevention programme in action look like and could such a model be scalable and flexible enough to be applied in various settings? Tips and applicable lessons learned from an established, population health-based programme of cancer prevention work in action will be presented. Whether small or large steps in cancer prevention are possible in the work that you do, the lessons learned will have something for you.

Bringing a provincial and regional lens to cancer prevention, the British Columbia Cancer Agency Prevention Programs (BCCAPP) takes a population health community-based approach to promoting and educating the public and others about cancer prevention and healthy lifestyle choices. This work is done in partnership with regional health authorities, nongovernmental organizations, community groups and other cross-sectoral entities. BCCAPP promotes and educates those located in urban, rural, and/or remote environments and within diverse populations such as the Aboriginal, Chinese and south Asian communities. A key facet of BCCAPP is the well-networked provincial front-line staff who work with pre-existing community groups to initiate risk factor behaviour change in a supportive environment. A recently published book, *Community-based prevention: reducing the risk of cancer & chronic disease* (15), overviews this and other similar international models.

The BCCAPP's award-winning programme focuses on the five main preventable risk factors critical to cancer prevention (tobacco use, excess weight, poor diet, inactivity and excessive sun exposure). Many of these risk factors also significantly impact on chronic diseases such as diabetes and heart disease.

Though not without obstacles, such as securing long-term financing and a virtual team spanning vast geographical

distances, BCCAPP's model enables it to continue providing evidence-based information to communities for group-supported action in a maintained and sustainable manner.

Box 1: Summary and recommendations from Workshop 1

Challenges

- Measuring the impact of interventions – outcome measures can be difficult to define and collect
- Sustaining engagement and interest in common prevention priorities across sectors

Recommendations

- Need better strategies to raise provider awareness about the importance of prevention
- Need consistency of communication by providers in messaging around healthy lifestyles

2. Community-based interventions to reduce cancer risk

Neal Palafox, University of Hawaii, Honolulu, USA, and Gustavo Sarria-Bardales, Instituto Nacional de Enfermedades Neoplásicas (INEN), Lima, Peru

It is within a community that behaviours which reduce or enhance cancer risk begin, are reinforced and are sustained. The community, its culture, its environment and its members' participation in health behaviours are therefore the most significant determinant of cancer outcomes. Effective community-based interventions to reduce cancer cannot simply be placed in a community, but must be developed with the community and become the norm of the community.

There are existing programmes that have demonstrated how communities have utilized their social, cultural and stakeholder assets to ensure that cancer and NCD interventions are effective and sustainable. Participatory community engagement and partnership with government, academic and research partners are crucial components of effective and sustainable programmes.

Community-based interventions that are based on a participatory framework, work to build community capacity, engage communities as an equal partner and make the community an essential component of problem solving are likely to meet with the most success. Community well-being and development should be at the centre of any community-based intervention to reduce cancer risk.

Abstract 1: Training for trainers in cancer prevention counselling
Abel Limache-García, Gustavo Sarria-Bardales, Javier Manrique-Hinojosa, Miguel Ruiz-Ninapaytan, Dahjana Arce, Carmen Carpio and Tatiana Vidaurre Rojas, Instituto Nacional de Enfermedades Neoplásicas (INEN), Lima, Peru

Introduction

Cancer and other chronic degenerative diseases are currently a growing cause of incidence and mortality rates in many countries, and particularly in developing countries like Peru. One of the important factors for the prevention and control of cancer is the education of the general population, so it is important and necessary to train health and educational professionals to disseminate recommendations and counselling related to cancer prevention, focused on tobacco control, physical activity, infections (e.g., HPV, *Helicobacter pylori*, hepatitis virus), and screening and early detection of the most common cancers in our country, including cervical, breast, stomach, lung and prostate cancer.

Target

Train health professionals and teachers in methodologies about cancer prevention and early detection through prevention counselling.

Methodology

The Department of Health Promotion, Prevention and Cancer Control of INEN coordinates with the regional health directorates of the regional governments to select the medical professionals and nurses who will receive ongoing training workshops for cancer prevention counsellors. The cancer prevention counsellors are committed to completing the course of training, training other health professionals and offering cancer prevention counselling in their regions. For the training course, guides and flipcharts were developed for cancer preventive counselling.

Results

Since 2011, we have trained 4,640 professionals who have provided cancer preventive counselling to more than 100,000 individuals throughout Peru. The first trainers have developed more than 150 courses to train other trainers.

Abstract 2: INCA: Opening doors to high schools

Suse D Silva-Barbosa, Luciane S Soares, Luiz C Thuler, Marisa D Breitenbach, Anke Bergmann and Luis Felipe R Pinto

National Cancer Institute, Rio de Janeiro, RJ, Brazil

Cancer is an enormous public health problem in Brazil and many strategies have been used to improve the quality of life and health of the population. To address this issue, a social project was organized and conducted by postgraduate students, researchers, physicians and providers in health education, all of them from the National Cancer Institute (INCA) in Brazil. The basic concept of this

concerted project was that “the most effective treatment for cancer is to prevent the disease”.

Assuming that school provides an adequate social environment to diffuse and amplify information, we organized an interdisciplinary programme to provide information about cancer prevention to teenagers from public schools in Rio de Janeiro.

Initially the postgraduate students involved were trained to disseminate information about cancer. The objective was to provide support for people whose background was in science and technological research, helping them to acquire the skills necessary to disseminate information about cancer.

The pilot project was conducted at Tim Lopes School where postgraduate students shared their experiences with 300 high school students between the ages of 14 to 18 years. The project included discussions about risk and lifestyle factors related to cancer incidence and practical activities using games as a strategy to be more engaging and stimulate feedback.

After that, some students were selected to visit INCA facilities. This supplementary activity was to show them state-of-the-art cancer research and encourage them to see health research as a future career.

The programme represents a diverse workforce and its partial evaluation was very positive. For now, future directions include: to identify risk-based priorities related to the local context and to adapt the programme accordingly; to incorporate more schools from the same area; and to elaborate good practices to measure whether an effective intervention has been implemented.

Abstract 3: Strategies of health promotion for cancer prevention:

The experience of INEN

Abel Limache-García, Gustavo Sarria-Bardales, Javier Manrique-Hinojosa, Miguel Ruiz-Ninapaytan, Dahjana Arce, Carmen Carpio, Melania Vargas-Orihuela, Julia Huaman, Marlene Fierro, Maria Luisa Trelles and Tatiana Vidaurre Rojas
Instituto Nacional de Enfermedades Neoplásicas (INEN), Lima, Peru

Background

Health promotion for cancer prevention is an important component of cancer control. Information, education and communication are principle strategies in health promotion. In this way, the Health Promotion, Prevention and National Cancer Control Office of INEN has initiated activities to focus on cancer prevention through changes in lifestyles and to motivate the population to make decisions about their health.

Objective

To improve the knowledge of the community and increase people's capacity to make decisions about maintaining a healthy lifestyle through promoting cancer prevention and detection.

Methodology

The community has been educated by two strategies:

- ▶ **Education session:** Before personalized counselling, people must attend an education session – a conference where the speakers are physicians and nurses who talk about cancer, risk and protective factors, and healthy lifestyles and invite them to attend personalized counselling.
- ▶ **Personalized counselling:** Each person receives approximately 25 minutes of counselling by trained nurses where they are provided with specific information on cancer prevention and early detection; they use brochures, pictures, flipcharts and guidelines on cancer prevention, which have been adapted to our culture.

Results and conclusion

During the last 10 years we have provided education sessions every Friday of each week from February to November and more than 32,000 people have attended. Since 2011, we have implemented cancer prevention and control planning and 4,000 people have also received personalized counselling. We consider that this experience allows them to change their lifestyle, to know how to prevent and detect the most important cancers and to share

the information with other people in their communities. The education and personalized counselling sessions are very important strategies in the cancer prevention and control programme, especially in low- and middle-income communities, and we hope that they will contribute to cancer control in our region.

3. Policy-based interventions to reduce cancer risk

Andreas Ullrich, World Health Organization (WHO), and Roxana Regalado, Instituto Nacional de Enfermedades Neoplásicas (INEN), Lima, Peru

What we know

With more than one third of the overall cancer mortality explained by external causes, modifiable risk factors are the most promising targets for cancer control strategies and programmes. A wide variety of modifiable factors influence cancer risk, including behavioural (e.g., tobacco use, physical inactivity, unhealthy diet, obesity and alcohol use), infectious (e.g., HPV and HBV) and environmental and occupational (e.g., asbestos, arsenic, diesel smoke) exposures.

The challenge of modifying risks

Modifying cancer risks in a way that impacts the burden of cancer will require substantial changes to many sectors of society, including the production and advertisement of goods, tobacco demand and supply, urban planning and health system development.

The role of WHO and the paradigm change in global health

Over the last decade, WHO has developed global strategies to reduce exposure to behavioural factors that influence the risk of cancer, including strategies to reduce tobacco consumption (WHO Framework Convention FCTC (14)), to increase the adoption of a healthy lifestyle (global strategy on diet and physical activity (16)), and reduce alcohol consumption (WHO Global Alcohol Control Strategy (17)).

These policies combine interventions at the national level (e.g., taxation of tobacco), the community level (e.g., increased availability of options for physical activity) and the individual level (e.g., smoking cessation treatment, vaccination against HPV and HBV, and screening for cervical cancer). In implementing the UN High Level NCD Declaration, the Sixty-sixth World Health Assembly (2013) agreed on an NCD action plan which combines all of these risk reduction strategies and complements it with a health system-strengthening approach with a major focus on primary health care service delivery (5).

Box 2: Summary and recommendations from Workshop 2

- ▶ Involve the municipal level of government in the design, creation and implementation of community-based interventions
- ▶ Use mass media to educate the community and create favourable conditions for engaging the community in cancer control
- ▶ Identify and involve strategic sectors (teachers, church, youth, universities) in engaging the community
- ▶ Value and treat the community as an equal partner in designing, creating and implementing interventions
- ▶ Create a "social audit" to monitor programmes and empower communities (Social audit: level of knowledge and confidence of communities in interventions)
- ▶ Use short-, mid- and long-term outcome and process measures when evaluating impact
- ▶ Build community capacity through technical support (methods, ideas, design) with specific roles for each community stakeholder
- ▶ Develop supportive environments for the community in academic/government institutions

The role of national governments

These strategies and the NCD action plan are the result of broad consultations with governments, nongovernmental organizations (civil society) and the private sector. All of the strategies have been agreed upon by WHO Member States as World Health Assembly resolutions which give WHO Member States (national governments across sectors: Ministries of Health, Agriculture, Finance, Labour, Urban Planning and Traffic) and civil society roles and responsibilities in implementing these strategies to reduce cancer risks and to increase health system capacity for NCD prevention and control. Many countries are starting with national NCD strategies and plans which follow WHO's technical guidance in NCD prevention and control.

The NCD agenda and the challenge of linking it to cancer control

In 2011, heads of state at the UN High Level Meeting on Noncommunicable Diseases agreed on an NCD declaration and proposed a paradigm change to the global health agenda by asking for urgent action to combat NCDs. This change in vision to reduce NCDs stems from the premise that cancer, CVD, diabetes and obstructive lung disease are most effectively dealt with as a "package", with a focus on controlling behavioural factors and strengthening health care systems. One rationale for taking a combined approach is that there is broad overlap of risk factors between cancer, CVD, diabetes, and lung disease (e.g., tobacco for CVD and cancers, unhealthy diet/obesity for cancer and diabetes). The underlying model of the NCD agenda, however, very much favours CVD control and reduction of CVD risk factors at a population (e.g., salt reduction) and individual level with a primary health care approach (e.g., treatment of hypertension and hypercholesterolemia). This is because reducing cancer risks is more complex with more factors to be addressed, and reducing individual risks requires more investment in health care delivery (e.g., cancer screening and linking screening to secondary and tertiary care treatment).

The workshop addressed the following areas of work:

- ▶ Setting national/community priorities in cancer risk reduction: behaviour versus infectious versus environmental causes.
- ▶ Roles of government, civil society and the health care system.
- ▶ Synergies between cancer and NCD risk reduction: how to link to CVD, pulmonary disease and diabetes initiatives and achieve win-win situations.
- ▶ How to identify non-behavioural cancer risks (e.g., infections and environmental risks) and liaise with the

infection control/vaccine and environmental communities.

- ▶ How to position cancer screening programmes in national priority setting and community implementation given that screening programmes are unique to cancer in the NCD agenda.

Abstract 1: Strategies of health promotion to cancer prevention: The experience of INEN

See abstract under Workshop 2

Abstract 2: Tips and lessons learned from an established population health-based primary cancer prevention programme

See abstract under Workshop 1

Abstract 3: Children's social representations of smoking: A photovoice project in Petrópolis, Rio de Janeiro, Brazil

Rodrigo S Feijo, National Cancer Institute, Rio de Janeiro, RJ, Brazil

Smoking is the main risk factor, after high blood pressure, for noncommunicable diseases which are responsible for 63% of all deaths around the world. Despite successful smoking control policies implemented in Brazil, data shows that the prevalence of students that have ever smoked cigarettes is higher than 50% in many cities. Children's knowledge is often neglected when policy-makers design public health programmes. The general aim of this research is to contribute to the development of tobacco strategies focused on children by assessing their social representations of smoking using the photovoice technique with students from Petrópolis, Rio de Janeiro, Brazil. In total, 27 children (15 girls and 12 boys) between the ages of six and 16 years took part in the project that involved taking pictures, writing essays and group discussions. Children participated in three meetings over a period of 15 days. Thematic network analysis was performed to examine the data. Findings suggest that children's representations of smoking are very complex and controversial. While at first sight representations may be negative, with children highlighting many health risks related to smoking, after some interaction they also point out positive aspects of smoking that can make them experiment with cigarettes and later become smokers themselves. In practice, the research suggests that any programme aiming to prevent children from smoking will need to be very comprehensive and interact with other tobacco control initiatives, such as those which provide smoking treatment to children's family members. This is the first study of children's social

representations of smoking in Brazil and further research needs to be carried out.

Box 3: Summary of Workshop 3

- ▶ All actors – individuals, family, community, institutes and government – play a role in cancer control
- ▶ All actors need to be invested and engage in the guidelines for cancer prevention for them to be successful
- ▶ Priorities for cancer control differ by context
 - Whatever the context, when decisions are made it is important to take action immediately
- ▶ Synergies between prevention for NCDs and cancer exist (shared risk factors in nutrition, smoking, healthy lifestyle, etc.)
 - Policies promoting a healthy lifestyle should be pursued

4. Regional interventions to reduce the risk of cancer

Francisco Tejada, University of Miami, USA, and Milton Soria Humerez, Instituto Nacional de Laboratorios en Salud, Bolivia

This workshop explored interventions that can be implemented at a regional level to reduce the risk of cancer and noncommunicable diseases (NCDs) at all levels of the health system and society. The current sociocultural environment of our communities, appropriately called the social determinants of health, promote the development of cancer and other NCDs and their sequelae. The traditional curative and recuperative interventions of medical and health care systems are stabilizing these increases in developed countries, but cancer incidence and mortality continue to increase in many developing countries. The interventions needed to decrease the risk of cancer and NCDs require complex interdisciplinary, multidisciplinary and multisectoral actors and actions addressing the social determinants of health as well as health and medical care systems. These interventions need to be evidence-based and adapted for efficient dissemination in the region.

The oral abstracts selected for presentation in this workshop highlighted the complexity of these interventions and can be seen as models or frameworks for similar preventive actions and interventions that can be expanded to the region. The roundtable discussions following these oral presentations addressed the following questions:

- ▶ How do you measure the incidence and prevalence of risk factors for cancer and NCDs in your area/country? Are there multiple registries (i.e., hospital, public health units/departments), a national registry or periodic population surveys? How could this system be improved?
- ▶ In your area/country what interventions have been implemented to control risk factors for cancer and

NCDs? How successful have they been and how has success been measured? If they have not been successful, what challenges were identified and how can they be overcome?

- a. Thinking about the successful interventions, what characteristics do they have in common that have led to their success? (e.g., multiple components, action on multiple levels, integration with other interventions and services).
 - b. What additional interventions would you recommend implementing in your area/country? What challenges do you see to their implementation and how can these be overcome?
- ▶ What successful interventions in your country could be disseminated or expanded to other areas/nations or the region? Are they portable and adaptable? What interventions to reduce the risk of cancer and NCDs are being applied at a regional (Americas) and/or global level? What factors or characteristics contributed to their dissemination and adoption at the regional or global level?

Abstract 1: Lessons for cancer control from an STI population-level intervention

Patricia J Garcia, Universidad Peruana Cayetano Heredia, Lima, Peru

The PREVEN trial was a joint effort between the Universidad Peruana Cayetano Heredia, the University of Washington and Imperial College, London. It was designed as a community randomized trial of a multicomponent intervention for the prevention of sexually transmitted infections (STI) in Peru. The study was conducted in 20 Peruvian cities with populations of 50,000 to 300,000; 10 of which were randomized to intervention and 10 to control conditions. The intervention was comprised of three main components: (1) intensive outreach through a mobile team (health provider and peer educator) to female sex workers (FSWs) offering STI testing and treatment, condom promotion and promotion of health services; (2) the development of a referral network of pharmacies, midwives and physicians to strengthen syndromic STI management and prevention of STIs in the general population (the PREVEN Network); and (3) a social marketing campaign also aimed at the general population to enhance recognition of STIs and condom promotion. The intervention ran for three years and was evaluated through baseline and two- and three-year follow-up surveys, including STI testing, among convenience and time/location samples of FSWs and three-

stage random cluster household samples of 18–29 year-olds in the general population. Results showed a 34% reduction of STIs among FSWs and a 23% reduction among general population heterosexual women exposed to the intervention.

Several pertinent lessons can be derived from this important and successful trial which could and should be taken into consideration for cancer prevention: (1) the importance of collaboration of different entities (international and national); (2) the development of multicomponent interventions; (3) the inclusion of different health providers (including “informal sector”, such as pharmacies, in prevention activities; and (4) the inclusion of well-designed evaluation strategies, including the collection of baseline data.

Abstract 2: Contribution of the Peruvian Commission Against Tobacco (COLAT PERU)

Abel Limache-García, Luis Pinillos-Ashton, Carlos Farias-Alburqueque, Carmen Barco-Olguin and Mercedes Quesquen-Puente, Comisión de Lucha Antitabaquica-Coalición Multisectorial Peru contra el Cáncer, Lima, Peru

Smoking is a public health problem; tobacco use is responsible for one in three cancer-related deaths. The tobacco industry has developed different strategies to increase its consumption, including false and immoral advertising and the creation of unreal social responsibility. In Peru before 1985, tobacco consumption was allowed everywhere, more than 95% of teenagers ignored the risks of smoking and there was no awareness of tobacco as a public health problem.

The Peruvian Commission Against Tobacco was created in 1985 and the first step was to raise awareness of the problem through social mobilization. We organized concerts, long walks, bicycle and running events, musical festivals and the planting of 1,000 trees in one minute. We coordinated with the Ministry of Education to include in the school curricula information about “The pleasure of not smoking”. We coordinated with governmental institutions to create cessation programmes, information campaigns and through advocacy actions, such as a meeting of past Ministers of Health, we promoted laws to prohibit smoking in public places.

In 2004–2005, two events helped tobacco control: (1) Peru signed the Framework Convention on Tobacco Control and a multi-sectoral coalition against cancer was created with the participation of the public and non-public sectors; and (2) our Commission integrated the coalition and

promoted a new law according to the Framework Convention.

The actual law prohibits smoking in public places (100% free from smoke), mandates that graphic warnings be placed on both sides of the pack and imposes other regulatory standards according to the Convention on Tobacco Control. Currently the risk of smoking is known, there is respect for non-smokers and the law is enforced.

The “Day of Non-smokers” was established (31 May) and opinion leaders were engaged.

Now we are working to eliminate all tobacco publicity, increase tobacco taxes and improve cessation services. Health and tobacco control for all and by all.

Abstract 3: Clinical, epidemiological and genomic studies of *Helicobacter pylori*: The role of contaminated water

Manuel Valdivieso, University of Michigan, Bingham Farms, MI, USA; Chuanwu Xi, University of Michigan, Ann Arbor, MI, USA; Alejandro J Bussalleu, Universidad Peruana Cayetano Heredia, Lima, Peru; Italo Novoa, Universidad Peruana Cayetano Heredia, Lima, Peru; Blga Soledad Osorio, Division General of Environmental Health of the Ministry of Health of Peru, Lima, Peru; Rachael Sexton, SWOG Statistical Center, Seattle, WA, USA; Kevin F Boehnke, University of Michigan, Ann Arbor, MI, USA; John J Crowley, SWOG Statistical Center, Seattle, WA, USA; Gary E Goodman Swedish Medical Center Cancer Institute, Seattle, WA, USA; and Laurence H Baker University of Michigan, Ann Arbor, MI, USA

Gastric cancer (GC) is the most common cancer and cause of cancer death in Peru. *Helicobacter pylori* (HP) is a carcinogen type I and is associated with GC. We hypothesized that water contamination by HP could contribute to the large number of cases of GC throughout Lima. We investigated the relationship of gastric infection by HP to the presence of HP in patients’ drinking water and its associated biofilms, by culturing methods, quantitative PCR HP-specific DNA and correlations with water characteristics including residual chlorine. In total, 182 symptomatic patients were screened; 177 are analyzable; 106 tested positive by gastric biopsy. Of these, 89 HP positive patients come from high-risk, low-socioeconomic areas; 70% were females and 87% were older than 40 years. All laboratory studies ran concurrent controls. Quantitative PCR found HP-specific DNA (CN/mg tissue) present in 55 of 71 HP gastric biopsy negative (range, 9.69 – 294952.44) and in 94 of 106 HP gastric biopsy positive patients (range, 29292.24 – 1798528.08). Corresponding water levels (Copies/L) were 0-3365000, being lower in their biofilms: 0-68600. There were no

correlations with district of residency, water source, crowding and chlorine in the water. We could not culture HP from water though our developmental culture efforts continue. A positive response to treatment by urea breath test (UBT) at 6–8 weeks was 70%. There is evidence of HP in the drinking water of Lima and in symptomatic patients with and without biopsy evidence of HP.

Box 4: Summary of Workshop 4

- Understand the problem! There is a need for epidemiology and formative research
- Include multicomponent interventions
- Collaborate with different entities (international and national)
- Detailed planning and involvement with the authorities and community is critical
- Involve different types of health providers, also “non-traditional” sectors (e.g., drugstores)
- Provide training, certification (recognition), support and monitoring - Create networks. Identify champions
- Create awareness campaigns to engage the community
- Ensure services are ready to respond
- Include both prevention and management and ensure good coverage
- Measure outcomes – inclusion of well-designed evaluation strategies is key

PLUS: Research to validate interventions

Discussion and conclusions

Graham A Colditz, Washington University in St Louis, USA and Eduardo Cazap, SLACOM, Argentina

This session drew attention to the importance of awareness and communication with providers of prevention messages. Many preventive services begin with the primary care provider and their engagement and endorsement can reinforce broader prevention programmes delivered in the community. Beyond providers, involvement of all interested stakeholders in cancer prevention is necessary to reach all members of society. Delivery of messages that are accessible to all levels of education is needed in the locations where the population is to be influenced. One strategy is point of sale advertising as used for marketing by many commercial products (including, historically, tobacco sales, sugar-sweetened beverages, etc). Prevention needs similar strategies to promote wellness.

When delivering prevention messages, whether through providers or in the community more broadly, tailoring these messages to the community is an important component of inviting participation in prevention. To maximize the benefit of prevention messages, and the opportunities for prevention, we

must broaden the range of providers and services to deliver prevention. Schools offer one important component for nutrition and physical activity, for example. Here, teachers are not typically thought of as cancer specialists, but through multiple aspects including the curriculum, school lunch and physical education, the school system and its staff offer opportunities for prevention.

To increase the efficiency of prevention programmes, we need evaluations that quantify aspects of the process, performance and impact of prevention messages and interventions (18, 19). Such evaluations could include a social audit as one performance measure. Evaluation must take the broader time horizon that corresponds to the development of cancer and the time frame for preventive interventions to pay off (8, 20). For example, infant vaccination with hepatitis B vaccine will prevent liver cancer many decades later. But monitoring the level of delivery of vaccination is necessary throughout the development and delivery of a vaccine-based prevention programme. Thus, evaluation must define short-, intermediate- and long-term measures of implementation and outcome success for prevention. Clearer definitions of appropriate measures will help bring more consistent prevention for cancer and other NCDs.

Prevention is implemented in the context of communities and these environments must be engaged in the process of priority-setting and evaluation. Providers, academics and government policy-makers must come together with communities to define common targets for prevention and acceptable measures of progress.

To achieve cancer prevention, we must not just convene and make recommendations, but rather we need to institute actions and ensure the capacity for response is present across all aspects of society, and that the measurement and reporting of interventions is instituted as an essential aspect of programme development and delivery.

Acknowledgments

This manuscript is a synthesis of plenary presentations, workshop discussions (including selected abstract presentations) and recommendations for ongoing actions derived from Session 1 of the Fifth International Cancer Control Congress (ICCC-5) held in Lima, Peru, 3–6 November 2013. The ICC-5 working group was made up of Simon B Sutcliffe, Kavita Sarwal and Catherine G Sutcliffe from the International Cancer Control Association and Tatiana Vidaurre Rojas and Roxana Regalado from the National Cancer Institute (INEN) in Peru. The opinions expressed herein represent those of the authors alone and do not necessarily represent the institutions and organizations by which they are employed.

References

1. Coates RJ, Given LS, Lee NC, Colditz G. A collaborative, comprehensive approach to fulfilling the promise of cancer prevention and control. *Cancer Causes & Control*. 2005;16 Suppl 1:1.
2. Centers for Disease Control and Prevention. *The Guide to Community Preventive Services* (The Community Guide). Atlanta (GA)2013; Available from: <http://www.thecommunityguide.org/index.html>.
3. Beaglehole R, Bonita R, Alleyne G, Horton R, Li L, Lincoln P, et al. UN High-Level Meeting on Non-Communicable Diseases: addressing four questions. *Lancet*. 2011;378(9789):449-55.
4. Beaglehole R, Bonita R, Horton R, Adams C, Alleyne G, Asaria P, et al. Priority actions for the non-communicable disease crisis. *Lancet*. 2011;377(9775):1438-47.
5. World Health Organization. Global Action Plan for Prevention and Control of Noncommunicable Diseases, 2013-2020. World Health Organization; 2013 [cited 2014 March 27]; Available from: http://www.who.int/cardiovascular_diseases/15March2013UpdatedRevisedDraftActionPlan.pdf.
6. Sullivan R. Putting public health back into the global cancer agenda. *Annals of oncology: official journal of the European Society for Medical Oncology/ESMO*. 2012;23(12):2995-6.
7. Colditz GA. Cancer culture: epidemics, human behavior, and the dubious search for new risk factors. *American journal of public health*. 2001;91(3):357-9.
8. Colditz GA, Wolin KY, Gehlert S. Applying what we know to accelerate cancer prevention. *Science translational medicine*. 2012;4(127):127rv4.
9. International Agency for Research on Cancer. GLOBOCAN 2012: estimated cancer incidence, mortality and prevalence worldwide in 2012. Lyon, France: International Agency for Research on Cancer, World Health Organization; 2012 [cited 2014 Jan 26, 2014]; Section on Cancer Information]. Available from: http://globocan.iarc.fr/Pages/fact_sheets_cancer.aspx.
10. de Martel C, Ferlay J, Franceschi S, Vignat J, Bray F, Forman D, et al. Global burden of cancers attributable to infections in 2008: a review and synthetic analysis. *Lancet oncology*. 2012;13(6):607-15.
11. Swinburn B, Gill T, Kumanyika S. Obesity prevention: a proposed framework for translating evidence into action. *Obes Rev*. 2005;6(1):23-33.
12. Swinburn BA, Sacks G, Hall KD, McPherson K, Finegood DT, Moodie ML, et al. The global obesity pandemic: shaped by global drivers and local environments. *Lancet*. 2011;378(9793):804-14.
13. World Health Organization. Global status report on noncommunicable diseases 2010. Geneva, Switzerland: World Health Organization; 2011 [cited 2014 March 27]; Available from: http://www.who.int.ezproxy.welch.jhmi.edu/nmh/publications/ncd_report2010/en/.
14. World Health Organization. WHO Framework Convention on Tobacco Control. 2005 [cited 2014 March 6]; Available from: <http://www.who.int/fctc/en/>.
15. McLean D, Williams D, Krueger H, Lamont S. Community-Based Prevention: Reducing the Risk of Cancer and Chronic Disease. Toronto, Ontario: University of Toronto Press, Scholarly Publishing Division; 2013.
16. World Health Organization. Global Strategy on Diet, Physical Activity and Health. 2004 [cited 2014 March 6]; Available from: <http://www.who.int/dietphysicalactivity/en/>.
17. World Health Organization. Global strategy to reduce harmful use of alcohol. 2010 [cited 2014 March 6]; Available from: http://www.who.int/substance_abuse/activities/gsrhua/en/.
18. Powell BJ, McMillen JC, Proctor EK, Carpenter CR, Griffey RT, Bunger AC, et al. A compilation of strategies for implementing clinical innovations in health and mental health. *Medical care research and review: MCRR*. 2012;69(2):123-57.
19. Proctor E, Silmere H, Raghavan R, Hovmand P, Aarons G, Bunger A, et al. Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda. *Administration and policy in mental health*. 2011;38(2):65-76.
20. Wei EK, Wolin KY, Colditz GA. Time course of risk factors in cancer etiology and progression. *Journal of clinical oncology: official journal of the American Society of Clinical Oncology*. 2010;28(26):4052-7.