THE BURDEN OF CANCER-PREVENTION THE KEY

“WE SHOULD PUT OUT THE FIRE WHILE IT IS STILL SMALL PREVENTION MUST BE WRIT LARGE IN CANCER CONTROL PLANS IF WE ARE TO DEFY THE DARK PREDICTION OF THE STATISTICS.”

UNITED. WE STAND TO FIGHT AGAINST CANCER.

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Kuala Lumpur 50450,
Federal Territory of Kuala Lumpur, Malaysia.
“THE BURDEN OF CANCER-PREVENTION THE KEY”

1. “The rising burden of cancer and other NCDs places enormous strain on the health care systems of developing countries, many of which are ill equipped to cope with the escalation in the number of people with cancer. Developing countries find themselves in the grip of cancers from two vastly different worlds. The world of Poverty and the world of plenty.”

2. Incidence of cancer has increased from 12.7 million in 2008 to 14.1 million in 2012, an 11% increase. It is expected to rise by a further 75% over the next two decades bringing the total number of cancer cases to 25 million.

3. The greatest impact will be in low and middle income countries. The need to elucidate the causes and devise effective prevention strategies are essential to cancer control “we should put out the fire while it is still small prevention must be writ large in cancer control plans if we are to defy the dark prediction of the statistics.”

4. With 14 million new deaths and 8 million cancer-related deaths in 2013 affecting population in all countries and regions, it is a major cause of morbidity and mortality. Age standardised incidence and mortality rates of 182 and 102 per 100,000 respectively. Among men the five most common sites are: Lung 16.7%; Prostate 15.0%; Colorectum 10%; Stomach 8.5%; Liver 705%. Among women: Breast 25.2%; Colorectum 9.2%; Lung 8.7%; Cervix 7.9%; Stomach 4.8%.
1. The advocacy to raise political awareness and influence public policy decision-making. The 2011 UN general Assembly High Level Meeting on the Prevention and Control of NCDs provide the opportunity to position cancer as a global health and development issue.

2. Only 43% of low-income countries reported having operational National Cancer Control Plans. Even in countries with cancer plans programmes are not always supported with the necessary funding. The percentage of populations covered by a cancer registry is 95% in N America; 42% in Europe but only 60% in Latin America and Asia; 2% in Africa.

3. The World Economic Forum identified NDCs as the second greater risk to global economic growth.

4. One half of those who die from NDCs are in their most productive years- consequently social and economic costs of lost productivity are considerable. The cost of cancer alone is estimated to reach $ 458 billion by 2030, yet WHO estimates that a package of cost- effective strategies to address the commonest risks- alcohol consumption, unhealthy diet and physical inactivity would only cost $2 billion a year.

5. Less than 3% of $22 billion of overall development assistance for health was allocated to NCDs in 2007, despite 80% of preventable deaths from such diseases occurring in developing countries.
FUNDAMENTAL RESEARCH: THE FOUNDATION OF TODAY’S TREATMENTS AND TOMORROW’S ADVANCES

45 FDA-APPROVED THERAPIES
A more comprehensive understanding of the genetic and molecular underpinnings of normal and tumor cell biology has led to the development of 45 FDA-approved therapeutics that specific molecules involved in cancer.

5 FDA-APPROVED THERAPIES
An understanding that epigenetic factors influence cancer development has led to five FDZ-approved therapeutics that work by targeting the proteins that modify the epigenome, with more under development such as the therapy Jack Whelan received.

10 ANTICANCER THERAPIES
Identification of the factors and processes by which cancer cells stimulate the development of blood and lymphatic vessel network has led to 10 anticancer therapeutics that impede this process.

17 ANTICANCER THERAPIES
Knowledge that the hormones estrogen and testosterone are systemic factors that drive many breast and most prostate cancers. Respectively, led to the development of 17 antihormone therapeutics to treat patients with these diseases.

A more complete understanding of the immune system and its function has led to the development of a class of treatments collectively known as immunotherapeutic. These revolutionary treatment approaches harness a patient’s own immune system to eliminate their cancer cells.
Screening to detect cancer in individuals showing no signs or symptoms of the disease they are being screened for can have tremendous benefits. However, it can also cause unintended harm, and this has made it difficult to develop strategies for screening for the majority of cancer types. For a screening program to be successful, it must meet two important criteria: It must decrease deaths from the screened cancer, and the benefit it provides must out weight any harms. Determining whether a screening program meets these criteria requires an enormous amount of research and careful analysis of the data generated.

**BENEFITS OF SCREENING:**

**Reduced cancer incidence:** Screening tests can detect precancerous lesions. Removal of the abnormal tissue can reduce, or even eliminate, an individual’s risk of developing the screened cancer. For example, the Pap test can detect lesions they develop into cervical cancer.

**Reduced incidence of advanced disease:** Screening tests that detect cancers that have already developed can reduce the individual’s risk of being diagnosed with the screened cancer at a stage when it has spread to other parts of the body.

**Reduced mortality:** Diagnosis at an early stage of disease increases the likelihood that a patient can be successfully treated, and thereby reduces the individual’s risk of dying of the screened cancer. For example, mammography can detect breast cancers at an early stage. When surgery may be curative.
POTENTIAL RISK OF SCREENING:

Adverse Events: Screening tests are medical procedures; as a result, they carry some risk. However, the chance that an adverse event will occur during a screening test approved by the USPSTF is low.

Anxiety: screening individuals who are not at high risk of disease can cause unnecessary anxiety during the waiting period for the test results.

False-Positive tests: Not all individuals who have a positive screening test have the screened cancer. The rates of false-negatives are generally low. But, a false-positive screen can result in additional unnecessary medical procedures, treatments and anxiety.

False-negative tests: Not all individuals who have a negative screening test are free from the screened cancer. The rates of false-negatives are generally low, but a false-negative screen can lead to missed opportunities for early treatment.

Overtreatment and over diagnosis: Not all cancers detected by screening will go on to cause symptoms and threaten life. Over diagnosis, as this is called, leads to overtreatment, which carries its own risks. The rate of over diagnosis and Overtreatment vary between screening tests and is difficult to quantify.
THE FOCUS ON CANCER

1. The global burden of cancer
   - Tobacco
   - Alcohol drinking
   - Occupational exposures
   - Environmental pollution
   - Food contaminants
   - Medicinal drugs
   - Radiation
   - Chronic infections
   - Diet and nutrition
   - Immunosuppression
   - Genetic Susceptibility

2. The causes of cancer
   - Tobacco
   - Alcohol drinking
   - Occupational exposures
   - Environmental pollution
   - Food contaminants
   - Medicinal drugs
   - Radiation
   - Chronic infections
   - Diet and nutrition
   - Immunosuppression
   - Genetic Susceptibility

3. Reproductive factors and hormones
   - Mechanisms of tumour development
     - Multistage carcinogenesis
     - Carcinogen activation and DNA repair
     - Ontogenesis and tumor
     - Suppressor genes
     - The cell cycle
     - Cell-cell communication

4. Apoptosis
   - Invasion and metastasis
   - Prevention and screening
   - Primary prevention
   - Tobacco control
   - Reduction of Occupational
   - And environmental exposures
   - Hepatitis B vaccination
   - Human Papillomavirus vaccination
   - Chemoprevention
   - Secondary prevention/screening
   - Breast Cancer
   - Prostate Cancer

5. Human cancers by organ site
   - Lung Cancer
   - Breast Cancer
   - Stomach Cancer
   - Colorectal Cancer
   - Liver cancer
   - Cancers of the male reproductive tract
   - Cancers of the female
   - Reproductive tract
   - Oesophageal cancer
   - Bladder cancer
   - Head and neck cancer
   - Lymphoma
   - Leukaemia
   - Pancreatic Cancer
   - Melanoma
   - Thyroid cancer
   - Kidney cancer
   - Tumours of the nervous systems

6. Cancer Management
   - Surgical Oncology
   - Radiotherapy
   - Medical Oncology
   - Rehabilitation
   - Palliative care

7. Cancer Control
   - Cancer control: a global outlook
   - Cancer control in developing countries
   - Perspectives and priorities
INCREASING GLOBAL BURDEN OF CANCER:
In 2012, the worldwide burden of cancer rose to an estimated 14 million new cases per year, a figure expected to rise to 22 million annually within the next two decades. Over the same period, cancer deaths are predicted to rise from an estimated 8.2 million annually to 13 million per year. Globally, in 2012 the most common cancers diagnosed were those of the lung (1.8 million causes of cancer death were cancers of the lung (1.6 million, 19.4% of the total), liver (0.8 million, 9.1%) and stomach (0.7 million, 8.8%).

THE CANCER DIVIDE:
As a consequence of growing and ageing populations, developing countries are disproportionately affected by the increasing numbers of cancers. More than 60% of the world’s cancer deaths, a situation that is made worse by the lack of early detection and access to treatment.

AVOIDABLE DEATHS:
Access to effective and affordable cancer treatments in developing countries, including for childhood cancers, would significantly reduce mortality, even in settings where health-care services are less well developed.

However, the spiralling costs of the cancer burden are damaging the economies of even the richest countries and are way beyond the reach of developing countries, as well as placing impossible strains on health-care systems. In 2010, the total annual economic cost of cancer was estimated to reach approximately US$ 1.16 trillion. Yet about half of all cancers could be avoided if current knowledge was adequately implemented.

“The rise of cancer worldwide is a major obstacle to human development and wellbeing. These new figures and projections send a strong signal that immediate action is needed to confront this human disaster, which touches every community worldwide, without exception”
Many developing countries continue to be disproportionately affected by the double burden of high infection-related cancers (including those of the cervix, liver, and stomach) and the rising incidence of cancers (such as those of the lung, breast, and large bowel) associated with industrialised lifestyles.

Yet the implementation of effective vaccination against hepatitis B virus and human papillomavirus can markedly reduce cancers of the liver and cervix, respectively. Preventing the spread of tobacco use in low and middle-income countries is of crucial importance to cancer control. Likewise, in rapidly industrialising countries, measures to promote physical activity and avoid obesity should also be prioritised in relation to cancers such as those of the large bowel and breast.

**EARLY DETECTION, DIAGNOSIS, AND TREATMENT:**

In addition, low-tech approaches to early detection and screening have proven their efficacy in developing countries. A prime example of cervical cancer screening using visual inspection with acetic acid and cry therapy or cold coagulation treatment of precancerous lesions. This type of “Screen-and-treat” programme has been successfully implemented in India and Costa Rica, for example.

“Government must show political commitment to progressively step up the implementation of high-quality Screening and early detection programmes, which are an investment rather than a cost.”

**ADEQUATE LEGISLATION TO REDUCE EXPOSURE AND RISK BEHAVIOURS:**

Lesson from cancer control measures in high-income countries show that prevention works but that health promotion alone is insufficient, Adequate legislation plays an important role in reducing exposure and risk behaviours.

For instance, the First international treaty sponsored by WHO, the Framework Convention on Tobacco Control, has been critical in reducing tobacco consumption through taxes, advertising restrictions, and other regulations and, measures to control and discourage the use of tobacco.

Similar approaches also need to be evaluated in other areas, notably consumption of alcohol and sugar-sweetened beverages, and in limiting exposure to occupational and environmental carcinogenic risks, including air pollution.

“Adequate legislation can encourage healthier behaviour, as well as having its recognized role in protecting people from workplace hazards and environments commit to enforcing regulatory measures to protect their populations and implement cancer prevention plans.”
The immense burden of cancer is clear not just from the large number of lives it touches but also from its significant economic impact. Cancer is among the costliest of diseases to the United States. The most recent NIH estimates indicate that the overall economic costs of cancer in 2009 were $216.6 billion: $86.6 billion in direct medical costs (i.e., the costs for all health expenditures) and $130.0 billion for indirect costs (i.e., costs for lost productivity due to premature death) (1). These costs stand in stark contrast to the NIH and NCI budgets for fiscal year 2014, which are just $30 billion and $4.9 billion, respectively.

The global economic toll of cancer is also enormous. It has been estimated that the 12.9 million new cases of cancer diagnosed in 2009 cost the world $286 billion that year alone (14). As the number of cancer cases rises, so, too, does cost. The 13.3 million new cases of cancer diagnosed worldwide in 2010 are estimated to have cost $290 billion, and the 21.5 million new cancer cases anticipated to occur in 2030 are projected to cost $458 billion.

“The rising economic and personal burden of cancer underscores the urgent need for more research to develop new prevention and treatment approaches.”
COLLABORATION TO DEAL ON CANCER WORLDWIDE:

Discussions focussed on how a truly intersectional approach, building on current best practice, ‘will increase our ability to address cancer globally. It was recognised by many participants that the global cancer community needs to embrace a more coordinated and collaborative approach between all sectors-across country boarders, across diseases and though public and private partnerships-for it to reduce the cancer burden in future.

The cancer community to strive to find new opportunities for innovative partnerships that will drive action on all fronts; in prevention, screening, treatment and control; in order to accelerate progress towards the 2025 and 2030 goals.

The inequalities in survival rates between children with cancer in low-income countries versus high-income countries can be remedied through improving early detection of childhood cancer and referral to quality treatment facilities.

Childhood cancer is the leading cause of death of children in high-income countries and is an important cause of child mortality in low- and middle-income countries. we can cure 80% of causes if treated promptly. However, 80% of children with cancer live in low and middle-income countries where survival rates can fall to below 20%. Raising survival rates and treating children with cancer can be achieved through implementing effective programmes focused on early detection, prompt diagnosis and treatment. International Collaboration efforts should be directed towards building centres of excellence for treatment of childhood cancer where children have uninhibited access to treatment and care. Adopting a human rights approach to childhood cancer advocacy can achieve policy and programmatic attention to issues such as access to and quality of treatment and care for children with cancer.

“Childhood cancer is not ‘mission work’. We must integrate childhood cancer into national cancer control and child health programmes and works with partners from all sectors to do so.”

Collaborations require an understanding of each partner’s strengths and relationships, that they must be adequately resourced and also have the exibility to adapt to changing circumstance.

Both international and national collaborations are important to foster as part of the cancer planning process. International involvement can help to build con dence amongst partners particularly where now relationships are being forged. Collaboration is most successful where parties recognise their core competencies and work collaboratively to make the most of each partner’s complementary skills and resources.
COLLABORATION TO DEAL ON CANCER WORLDWIDE:

The cancer planning process should be participatory and multispectral involving government, NGOs, academia, and relevant private sector. Securing financial support is critical to successful implementation of cancer control plans.

“If we are not successful in combining national and international collaboration, success in tackling cancer has a much higher chance of failure.”

a. The question is not whether we should partner, but we do it and how we develop partnerships with a shared purpose where there is trust between partners and reciprocity in power.

b. Partnerships are complex- a process must be put in place to manage inherent COIs, realise that mistakes will be made, learn from experience and share what we learn.

c. Partnerships require a change in mindset- we need to be intentional about the choice we make in partners, the actions we take together and understand and work through COIs.

It is critical to understand the nature and context of the policy process with a strong evidence base, policy change and impact can be achieved. Mechanisms of collecting evidence vary tremendously. All countries can contribute to evidence generation regardless of level of development. Engaging with academia is a key component of evidence generation and promotion. There is a need for mutual understanding and dialogue among potential collaborators and respect for all partners. This includes an understanding of how each stake holder defines success.

“True international collaboration is not about one partner “helping” another. In good collaboration, all partners learn. And all win.”

Learning from established national NCD alliances can be a key lever in strengthening the national civil society response, mobilising and coordinating advocacy efforts and making governments accountable. Innovation platforms and strategies for mobilising adequate resource are needed-pooling resources, attracting non-traditional donors and working through a membership model are all ways strengthening the NCD response in low-resource settings. Advocacy efforts must use the SDGs for high level government engagement which mobilises non-health ministry’s to integrate NCDs into their portfolios and achieve long-term, sustainable resourcing for NCD prevention and control.

“Learning from other alliances has been key lever in strengthening the civil society response, mobilising national advocacy and making governments accountable.”

Sharing data is fundamental to effective cancer research and treatment. We need to ensure that all those engaging in the research process benefit equally and protection of the patient needs are balanced within this. The development of international guidelines on data sharing is an important action to guide best practice.
“CHILDHOOD CANCER IS NOT ‘MISSION WORK’. WE MUST INTEGRATE CHILDHOOD CANCER INTO NATIONAL CANCER CONTROL & CHILD HEALTH PROGRAMMES AND WORK WITH PARTNERS FROM ALL SECTORS TO DO SO.”