THE ANATOMY OF CANCER
The size of the problem

• Cancer is the leading cause of death worldwide: it accounted for 7.4 million deaths in 2004.
• This is more deaths than malaria, TB and AIDS combined worldwide.
• In the US today 1 out of 2 males and 1 out of 3 females will get cancer in their lifetime.
• 1 out of 9 males and females will get prostate or breast cancer.
The cancer problem is like Mt Everest

It challenges us all......

Cancer affects us all...
How will we conquer Mount Everest?
Will it be a hard slog?
Or will it be a quick fix?
What is the status quo?

• So far the “helicopter approach” has not worked.

• In 1972 Richard Nixon “declared war on cancer” and started the National Cancer Institute with a current budget of $7 billion.

• Over $200 billion has been spent mainly on searching for a cure and yet 50% of cancer patients cannot be cured.

• A “magic bullet” has not yet been found.
Why is a cure so hard to find?

• Because it is so complex.
Because the cancer cell is smart”.

A Component

<table>
<thead>
<tr>
<th>Acquired Capability</th>
<th>Example of Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-sufficiency in growth signals</td>
<td>Activate H-Ras oncogene</td>
</tr>
<tr>
<td>Insensitivity to anti-growth signals</td>
<td>Lose retinoblastoma suppressor</td>
</tr>
<tr>
<td>Evading apoptosis</td>
<td>Produce IGF survival factors</td>
</tr>
<tr>
<td>Limitless replicative potential</td>
<td>Turn on telomerase</td>
</tr>
<tr>
<td>Sustained angiogenesis</td>
<td>Produce VEGF inducer</td>
</tr>
<tr>
<td>Tissue invasion &amp; metastasis</td>
<td>Inactivate E-cadherin</td>
</tr>
</tbody>
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Cancer affects us all...
Optimism is essential, but the percentage of Americans dying from cancer is still what it was in 1970 . . . and in 1950.
Cancer affects us all...
What is the “hard slog”?

Stopping cancer before it starts.

Preventing cancer
Our guiding concept No.1

• We believe that prevention of cancer is the ultimate cure.
Guiding concept No.2

- 90% of all cancers in man are caused by environmental factors
The good news

- If we can clean up the environment to get rid of all cancer-causing agents (carcinogens) our grandchildren will inherit a cancer free world.
What will we trash? Carcinogens or the world?
If the quick fix is not going to work, we had better get on with the hard slog.
## The causes of cancer

- Smoking cigarettes: 30%
- Infections: 20%
- Man-made chemicals: 20%
- Nutrition: 15%
- Sun: 5%
- Pollution – smoke: 5%
- Occupation: 2%
- Unknown: 3%
Cancer Prevention is the hard slog

- **Strategy A: “Get rid of the carcinogens”**
  - 1. Identify the carcinogen or suspected carcinogen
  - 2. Gather facts
  - 3. Have local measurements done
  - 4. Interact with industry and aim for “Smart Choice” logo
  - 5. Interact with media
  - 6. Interact with government
  - 7. Seek lasting legislation
Preventing cancer inside the body

• Strategy B: “Strengthen the body to fight carcinogens”.
  • 1. Identify so-called “anti-carcinogens”.
  • 2. Must be in natural, whole food.
  • 3. CANSA not involved in supplements.
  • 4. Have local measurements done
  • 5. Interact with industry and aim for “Smart Choice” logo on product.
  • 6. Interact with media
  • 7. Interact with government, e.g. DoH
  • 8. Seek lasting legislation where necessary
Successful examples

- Anti-smoking
- Anti-hepatitis B
- BPA-free baby bottle
- Plastisiser-free clingwrap
- Canola oil
- Blossom Canola margarine
- Rooibos Tea
- Weet-Bix
Current investigations

• Uranium in Potchefstroom drinking water
• Composition and efficacy of sunscreens
• Acrylamide in chips
• Cosmetics
• Artificial sweeteners
• Cheap water filters
• Omega-6/omega-3 ratio
Preventing cancer in the body

OMEGA-6/OMEGA-3 = 2:1

Oils
Margarine
Milk
Yoghurt
Meat
Butter
Cheese

Cancer affects us all...
Which oil will I buy?

Sunflower seed oil = Rx
Canola oil = Rx + R5
Why???????????
Rooibos tea
Rooibos extract increases GSH/GSSG ratio 4-fold

Different teas

- 1. Water
- 2. Rooibos processed
- 3. Rooibos unprocessed
- 4. Honeybush processed
- 5. Honeybush unprocessed
- 6. Black tea
- 7. Green tea
Glutathione is made inside cells and cannot be taken as a supplement because it is broken down in the GIT.
In which diseases does oxidative stress play a key role?

- Cancer
- Inflammation
- Alzheimer’s
- Parkinson’s
- Liver disease
- Cystic fibrosis
- HIV
- AIDS
- Infection
- Heart attack
- Stroke
- Diabetes

Also involved in ageing

Cancer affects us all...
THE ANATOMY OF CANSA
Mission

- To be the preferred non-profit leader that enables research, educates the public and provides support to all people affected by cancer
Basic Facts about CANSA

- Section 21 Company-Not for profit
- 79 years old
- Service, Advocacy, Research
- 30 000 cancer patients p.a.
- Budget: R70 M
- 300 staff
- 59 Offices
- 12 000 volunteers
- Research Reserves: R100 M (Zadeck, Lamont).
- Research p.a. R5 M
- Source of funds: Public & Lotto
Basic facts about cancer in RSA

- 100 000 new cases diagnosed p.a.
- 60 000 deaths p.a.
- 40% survival
- 1 in 4 males
- 1 in 6 females
- Top cancers: breast, cervix, prostate, lung, colorectal, oesophageal,
Basic weaknesses in cancer control in RSA

- Dysfunctional cancer registry
- Underfunding (About 4 billion rand)
- No active, integrated Cancer Control Programme
- No director of cancer
- Poor referral system re early cervix cancer
- New drugs not affordable
Excellent anti-cancer systems in RSA

- Vaccination against hepatitis. Eradication of liver cancer
- Top class anti-smoking legislation
- Price increases of tobacco
- Fortified staple food
- Banning trans fats
- Willingness to improve & close co-operation with CANSA
Prognosis

• The situation will get worse – up to 400%

• Reasons:
  • Increasing urbanisation
  • Longer life expectancy
  • Increasing exposure to city life
  • Increasing exposure to man-made chemicals
The Heart of CANSA – Unique Service Proposition - USP

Research

Advocacy

Services

Cancer affects us all...
CANSA Patient services

- Women & men’s health campaigns - early detection
- Sun Smart campaign - prevention & early detection
- Balanced Lifestyle - prevention
- Youth Programmes - Prevention
- Tough Living with Cancer (TLC) - support & Assistance
- Parent Support programme - Coping
- Patient care - 17 384
- Trained caregivers - 2 767
- Trained volunteers - 13 126 + 5797 + 4208
- Interactions with society at large - 132 symposiums, 2 conferences, 62 public meetings
ADVOCACY: CANSA as a Watchdog

Carcinogens

Lobby

Pro Health

Cancer affects us all...
Examples of Advocacy Issues
CANCER AFFECTS US ALL...
CANSA Cancer Research

- Four different categories
- B- CANSA Initiated environmental projects. Counteract carcinogens; enhance body’s defences against cancer. Uranium, plastic, acrylamide, trans fats, cosmetics, insecticides, pure water. Whole grain, Rooibos tea, omega-6/omega-3 fats.
Flow of Type B Research

Study problem
Outsource research
Release results

Enhance knowledge, cancer prevention and funds for CANSA

Cancer affects us all...
Financial Year 2008/9

INCOME
R71 536 000

EXPENDITURE
R69 183 000

Surplus = R2 353 000 = 3.2%

Cancer affects us all...
Governance

President of the Board of Governors

Chairman of the Board

CEO

Heads CFO COO HHR
Vision for the future

• To become one of the top 5 cancer organisations in the world in terms of an integration of research, cancer prevention and patient care.
Call to Action

- Join us in this great international struggle against a most “democratic” disease that strikes men and women of all ages, races, nationalities and degrees of wealth or poverty. Together we can contain and control this biological terrorism and eventually win the war against cancer. Our grand children will live to see that day and they will thank us for our efforts.
"Whatever you do, or dream you can, begin it! Boldness has genius, power and magic in it".

...Goethe
Thank You