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HOW TO SOLVE THE PROBLEM OF CANCER AND REDUCE ITS ECONOMICAL BURDEN:
FUND ONLY RESEARCH PROJECTS WITH REAL POTENTIAL TO REDUCE PREMATURE CANCER DEATHS

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Abstract:
To achieve as soon as possible the goal of maximizing the reduction in premature cancer deaths while minimizing the cost per life saved, and at the same time keeping the door open to progress through the development of basic research (long-term development) it is necessary for every researcher who submits a cancer research project (and each DECISION MAKER who plans a service related to cancer) to provide an estimate, supported by scientific arguments, of the percentage of reduction of premature cancer deaths and a fair estimate of the percentage of reduction in cost for each life saved that their project should attain. The "Cancer Research Projects Comparison Table" reporting so far 124,737 cancer research projects already funded for a total of $37 Billion, when implemented consistently, with estimates supported by scientific arguments, is the tool that could lead to a substantial reduction of premature cancer deaths and cost for each life saved. Projects with higher potential to reduce cancer deaths and the ones that are a waste of charitable and public money will stand out first using the powerful tools of the table and then through the dialogue among their Principal Investigators who would be required to support their claims with scientific arguments. An Open Public SCIENTIFIC PROCEDURE should assign funding only to cancer projects whose authors can demonstrate with irrefutable scientific arguments the superiority of their projects over others that received awards, conspicuous funding, or which claim unsubstantiated achievements in reducing cancer deaths.

Demonstration that cancer research failed during the past 50 years: Reduction of the cancer death rate in the world's most industrialized countries who have a cancer cost of $741 billion/year is approximately the same as in less developed countries.

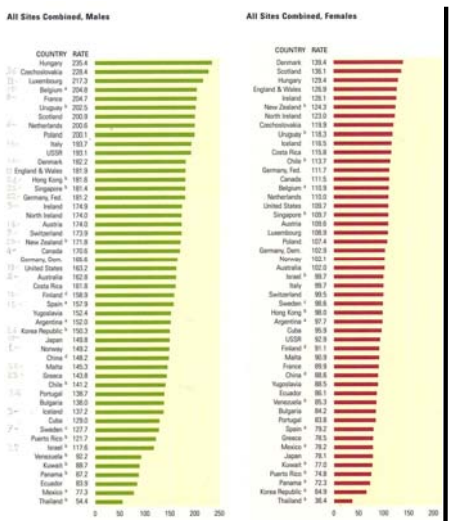
According to June 2, 2010 report from the World Health Organization (WHO), by 2030 there will be more than 13 million deaths from cancer worldwide and nearly 21 million cases diagnosed annually. (Compare to 12.7 million new cancer cases and 7.6 million cancer deaths occurred in 2008).

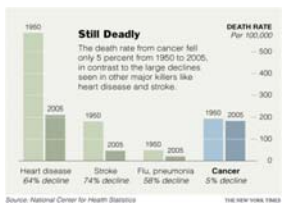
During the past 50 years reduction in cancer deaths has been recorded as a mere 5%. while for heart disease the reduction was 64%.

That the direction in cancer research needs to be changed to make it more efficacious is evident when one becomes aware that the **reduction of the cancer death rate in the world's most industrialized countries** with a cancer cost of $741 billion/year **is approximately the same as in less developed countries.** (This cost has been calculated based on the total cost of cancer in the U.S. in 2008 at $228.1 billion divided by the population of 304 million equals $750/per-capita annually. The Texas rate is higher at $912/per-capita annually calculated as $21.9 billion total cancer cost in 2007 divided by a Texas population of 24 million).

If the most industrialized countries, with their annual cancer cost of $750 per capita, were getting their money's worth, their cancer death rate would be lower than the less industrialized countries with a much lower cost per capita. Data reported in the figure on the right **gathered by the World Health Organization, adapted by the American Cancer Society and published by the National Institutes of Health-National Cancer institut**e, show this not to be true.

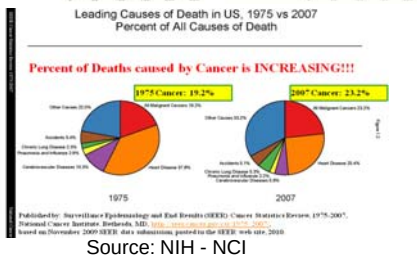
In fact, the most industrialized countries (1. Norway, 2. Australia, 3. Iceland, 4. Canada, 5. Ireland, 6. The Netherlands, 7. Sweden, 8. France, 9. Switzerland, 10. Japan, 11. Luxemburg, 12. Finland, 13. United States, 14. Austria, 15. Spain, 16. Denmark, 17. Belgium, 18. Italy, 19. Liechtenstein, 20. New Zealand, 21. United Kingdom, 22. Germany, 23.Singapore, 24. Hong Kong, 25. Greece, 26. South Korea, 27. Israel, 28. Andorra, 29. Slovenia, 30. Brunei, 31. Kuwait, 32. Cyprus, 33. Qatar, 34. Portugal, 35. United Arab Emirates, 36. Czech Republic, 37. Barbados, 38. Malta) should be located at the bottom of the graph where the death rate is lower and the less industrialized countries that invest less money to fight cancer should show a higher death rate and be located at the top.





The New York Times, 2009

Source: NIH - NCI



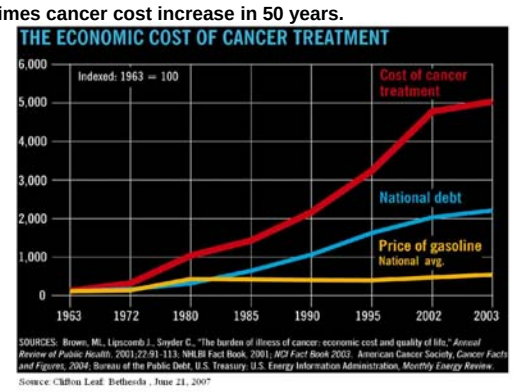
Source: NIH - NCI

Direct medical expenditures for cancer in the U.S. was $1.2 billion in 1963 and jumped to $93.2 billion in 2008.

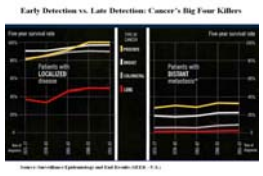
This is equivalent to a 100 times cancer cost increase in 50 years.

While the increase in cost of primary food was only 4 times.

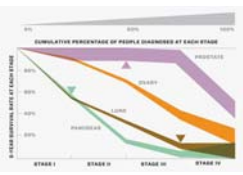
(In comparison: bacon went from $0.79/lb to $2.99/lb; eggs from $0.55 dozen to $1.29/dozen; banana $0.10/lb to $0.39/lb, etc.).



Experimental data show that early cancer detection saves lives but innovations are not funded.



FORTUNE Magazine 2004



WIRED Magazine 2008

Surveillance Epidemiology and END Results (SEER)

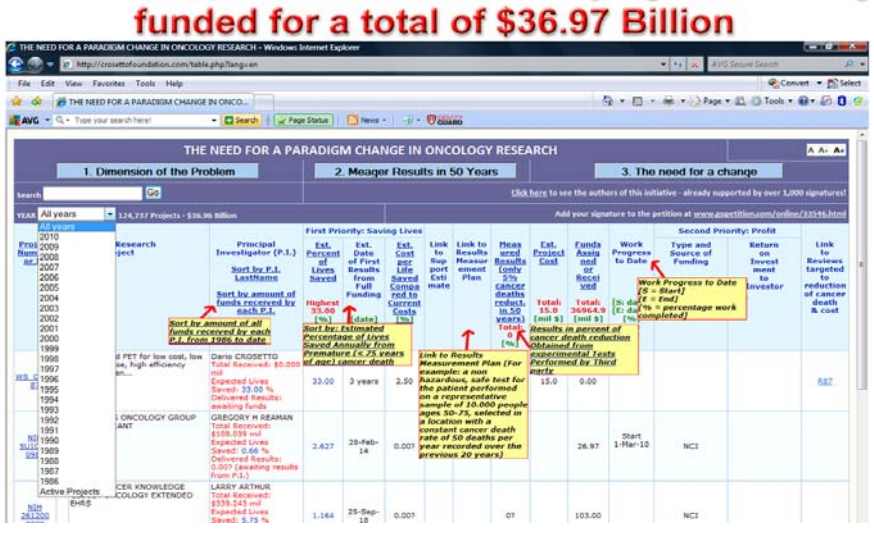
CANCER DEATH IS INCREASING: WHAT SHOULD WE DO? – The projects with highest potential to reduce cancer death will emerge from the Cancer Research Comparison Table. Then an Open, Public SCIENTIFIC PROCEDURE should be implemented to fund only research projects with real potential to reduce premature cancer death.

Cancer Research Projects Comparison Table (www.crosettofoundation.org/table.php?lang=en).

The facts listed above tell us that there is the need for a change in cancer research, which can be summarized as follows:

1. The need to equate a reduction in cancer deaths as the principal measurement for assessing the progress in the fight against cancer is accepted in all fields as reported in The New York Times, April 24, 2009. Therefore, it follows logically that the researchers **should provide a quantitative estimate** of what their research will achieve **in terms of reduction of cancer deaths** supported by scientific arguments, **and a plan describing the procedure to measure their results (**for example, **a measurement plan** with a nonhazardous, safe test for the patient **performed on a representative sample of 10,000 people ages 50-75, selected in a location with a constant cancer death rate of 50 deaths per year recorded over the previous 20 years). Finally** they should follow up **with the data of their experimental results (measuring on a sample population under age 75 the percentage of reduction of cancer death attained by their project** and not limited to showing achievements in tumor shrinkage, as in many cases the patients still dies after a few months because the original tumor metastasizes).
2. The need to implement the DIALOGUE, involving, physics, medicine, etc., as requested by CERN Director General, Rolf Heuer, during his opening speech at the first workshop of PHYSICS FOR HEALTH held at CERN, Geneva, in 2010.

Links to 124,737 cancer research projects already funded for a total of $36.97 Billion



The projects with the highest potential to reduce cancer deaths and the ones that are a waste of money will become apparent using the powerful tools of the table, followed by a dialogue with their Principal Investigators who would be required to support their claims with scientific arguments.

For the first objective the table allows searching and sorting data on:

1. **projects that provide the highest estimate (supported with scientific arguments) of cancer deaths reduction (by clicking on "Estimated lives saved" in fifth column),**
2. **active projects that have received conspicuous funding without providing an estimate of the results, as far as cancer death reduction**
3. **projects ended without providing results in reduction of cancer deaths (both, b) and c), could be sorted by clicking on the third text of the fourth column),**
4. **the party who invested in such projects and to whom benefits are returning –or profit- of the investment (by clicking respectively on two and one before the last column), etc.**

For the second objective, since it is impossible to set up a live discussion among all 124,000 projects, it makes sense to compare any project under consideration with one which received awards, conspicuous funding or which claims (supported by solid scientific arguments) the highest reduction in cancer deaths.

In order not to penalize long-term basic research, cancer research proposals or activities prepared by DECISION MAKERS who have the responsibility to plan services related to cancer, should be split into two lists (or categories as shown in the second column "CAT" of the table) that should refer to two independent budgets: one for fundamental research or basic research (long-term plans) and another for applications that will provide short-term results.

Currently the table is gathered from official sources of over 124,000 cancer research projects (far from being the total number) from 1986 onward, already funded for a total of $37 Billion.

Furthermore, the search tool by "key words" in the table (for example: "lung cancer", "ovarian cancer", "PET", etc.), **will allow the unfortunate who have been affected by this disease to search for the most advanced cancer research projects, if any, that may save their lives** and compare these with previous projects to see the advances that have been made. **By clicking on the text of the first column on the left it is possible to have access to the details of the project and to links that access further details - making it a valuable tool for consultation**.

In the event anyone knows of a project based on solid scientific grounds, or of a project that can provide reproducible results, statistically consistent, that do not appear when "search tool of this table" is used, please contact info@crosettofoundation.com, so that the project may be added.
When using this table, **THE BEST SOLUTIONS WITH HIGHEST POTENTIAL TO REDUCE CANCER DEATHS WILL IMMEDIATELY EMERGE**.

A practical example of a Public, Open "SCIENTIFIC PROCEDURE".

Cancerous cells differentiate from normal cells through different signals that provide information about their mutation. Among all these signals, the one most reliable and useful for early cancer detection is the change in metabolism that can be detected by the Positron Emission Technology.

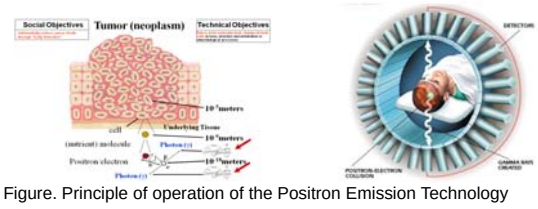


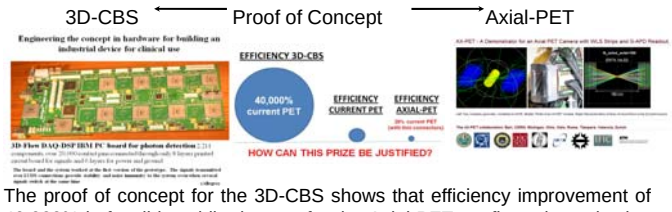
Figure. Principle of operation of the Positron Emission Technology

A practical example of an ongoing Public, Open "Scientific Procedure" is the one being implemented for some time, which involves emails to experts, workshops at CERN, meetings at BNL, as well as at the University and Polyclinic S. Matteo of Pavia, Italy to make the scientific truth prevail on projects with highest potential to reduce cancer deaths and cost (www.crosettofoundation.org/uploads/408.pdf).

After several meetings broadcast worldwide over several years on the subject of evaluating in depth the innovative 3D-CBS technology for early cancer detection by the author Dario Crosetto, on October 28, 2010 a worldwide meeting (connected via EVO Caltec system to U.S., Canada, CERN, etc.) was organized at the University of Pavia (Italy) to compare the 3D-CBS project that has been awaiting funding for more than a decade with the Axial-PET project by Christian Joram that won the first prize at the Workshop "Physics for Health" at CERN on February 3, 2010.

Surprising and shocking facts are emerging from this scientific procedure, some of which are summarized with testimonials in the YouTube video available at: http://www.youtube.com/watch?v=65MI5_ddlvU.

This scientific procedure is core to the implementation of the comparison table and should not be limited to these two projects but by using this table, any cancer research project that can claim higher results in reducing cancer deaths and costs can be compared with those that received awards.



The proof of concept for the 3D-CBS shows that efficiency improvement of 40,000% is feasible, while the one for the Axial-PET confirms the reduction in efficiency to 28%! (Using very thin connectors). Why do they continue to fund a technology less efficient than current technology? It seems that the goal is to promote projects that are more hazardous to the patient, less efficient and more expensive. They should ask themselves why?