

## Pancreatic Cancer: An Agenda for Action

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Report of the Pancreatic Cancer  
Progress Review Group

Presentation to the National Cancer Advisory Board  
February 14, 2001

### Charge to the PRG

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- To help the NCI develop an agenda for pancreatic cancer research by -
  - Identifying and prioritizing research opportunities and needs to advance medical progress,
  - Defining the scientific resources needed to address these opportunities and needs,
  - Comparing and contrasting these priorities with the current NCI research portfolio, and
  - Preparing a written report that describes findings and recommendations.

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### Members of the PRG

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<ul style="list-style-type: none"> <li>■ Scott Kern, M.D., Co-chair</li> <li>■ Margaret Tempero, M.D., Co-chair</li> <li>■ Barbara Conley, M.D., Exec.Dir.</li> </ul>	<ul style="list-style-type: none"> <li>■ Elizabeth Holly, Ph.D., M.P.H.</li> <li>■ Ralph Hruban, M.D.</li> <li>■ Elizabeth Jaffe, M.D.</li> <li>■ Murray Korc, M.D.</li> <li>■ Charles Lightdale, M.D.</li> <li>■ Albert Lowenfels, M.D.</li> <li>■ Martin McMahon, Ph.D.</li> <li>■ Michael Meyers, M.D., Ph.D.</li> <li>■ Cherie Nichols, M.B.A.</li> <li>■ Dan O'Hair, Ph.D.</li> <li>■ Gloria Petersen, Ph.D.</li> <li>■ Paula Simper</li> <li>■ Selwyn Vickers, M.D.</li> <li>■ Robert Vizza, Ph.D.</li> <li>■ David Whitcomb, M.D., Ph.D.</li> </ul>
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### The Call to Action

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- Most lethal of all solid tumors
- 4<sup>th</sup> most common cause of cancer death in men and in women
- 29,200 new cases and 28,900 deaths in 2001
- Only 4% of patients are alive five years after diagnosis.

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### The Call to Action

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- Funding for research is severely limited.
  - In 1999, NCI funding totaled only \$17.3 m.
- The disease is understudied in the lab and clinic.
  - Very few investigators focus exclusively on pancreatic cancer.

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### The Call to Action

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- Biology: The Challenge
  - Differentiation and development of normal pancreas cells are poorly understood.
  - Molecular events in tumorigenesis are inadequately defined.
  - Disease is complicated by many host-tumor interactions.
  - Resistance to conventional treatments is poorly understood.

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## The Call to Action

- **Biology: The Opportunity**
  - A number of genetic alterations have been identified and detected.
  - Some germline mutations have been shown to predispose carriers to cancer.
  - Some tumor-stromal interactions have been characterized.

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## The Call to Action

- **Risk/Prevention/Detection/Diagnosis: The Challenge**
  - Patients seldom exhibit specific symptoms until the cancer is advanced.
  - Technology to identify premalignant and early malignant lesions clinically is not available.
  - Identifying high-risk candidates for prevention and early detection in the general population is not yet possible.

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## The Call to Action

- **Risk/Prevention/Detection/Diagnosis: The Opportunity**
  - Four probable risk factors have been identified: family history, smoking, diabetes, and chronic pancreatitis.
  - Other risk factors have been postulated: elevated bmi/caloric intake and certain occupational exposures.
  - Technology is evolving that can support molecular diagnostic approaches.

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## The Call to Action

- **Therapy: The Challenge**
  - The disease disseminates early.
  - The impact of current therapies is limited.
  - Patients are unusually debilitated by multiple host-tumor factors.

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## The Call to Action

- **Therapy: The Opportunity**
  - Knowledge of the genetics and molecular biology of pancreatic cancer will provide new targets (e.g., TKI's for EGFR overexpression).
  - New information about the function of the immune system, and the mechanisms of metastases, can be harnessed for the development of effective therapeutics.
  - Evolving technology can facilitate rapid testing and evaluation of new agents.

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## The Call to Action

- **Health Services: The Challenge**
  - Very little health services research has focused on pancreatic cancer.
  - Until early diagnosis is possible, health services research must focus on post-diagnosis communication and care.

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## The Call to Action

- **Health Services Research: The Opportunity**
  - NCI has an extensive general health services research program, and a recent enhanced commitment to cancer communication initiatives.
  - Patients and their caregivers are seeking more comprehensive information.

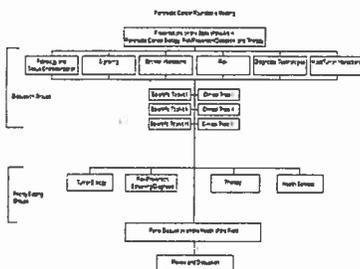
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## The Call to Action

- ■ **Scientific Tools: The Challenge**
  - Research is hampered by a dearth of tools, technologies, and resources such as tumor specimens, model systems, and imaging techniques.

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## Creating the Agenda for Action



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## The Agenda for Action

- **Improving the health of the field:**
  - Develop sustained, expanded training and career development in pancreatic cancer research
  - Create an interdisciplinary coordinating mechanism to identify funding opportunities and foster funding.
  - Establish centers of excellence for pancreatic cancer research and care

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## The Agenda for Action

- **Strengthening our understanding of pancreatic cancer biology:**
  - Achieve a more complete understanding of the normal biology of the pancreas.
  - Elucidate the development of the disease.
  - Study the natural history of the tumor-related stroma.
  - Investigate host-tumor interactions and develop therapies to address them.

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## The Agenda for Action

- **Determining risk factors, developing preventive strategies, and improving detection:**
  - Identify genetic factors, environmental factors, and gene-environment interactions.
  - Develop and evaluate approaches for early diagnosis and prevention in high-risk cohorts.

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## The Agenda for Action

- Improving the impact of therapy:
  - Develop and validate preclinical models for therapy.
  - Facilitate the discovery and development of targeted therapeutics.
  - Develop techniques to assess targeted therapies
  - Accelerate research into supportive care.

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## The Agenda for Action

- Advancing health services research:
  - Identify effective forms of health care provider communication with patients.
  - Identify determinants of message effectiveness in aiding patient decision making.
  - Identify manpower requirements and costs of multidisciplinary clinical trials.
  - Determine the efficacy of current care practices and evaluate new strategies for managing treatment and end-of-life issues.

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## The Agenda for Action

- Creating a scientific toolkit:
  - Construct resources for access to normal and neoplastic pancreas samples.
  - Construct a relational database containing information on normal and abnormal pancreas cells.
  - Develop biological sampling techniques that permit analyses of minute quantities of samples.

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## The Agenda for Action

- Creating a scientific toolkit (cont.):
  - Organize knowledge of signaling pathways into interrelated networks to assess the outcome of alterations in pathways found in pancreatic cancer.
  - Establish gene-based model systems that recapitulate the biology of pancreatic cancer.
  - Develop imaging systems for elucidating pancreatic cancer biology and detecting and monitoring disease.

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## Our Next Steps

- Meet with NCI Director and staff in four months to –
  - Determine the extent to which our recommendations are being addressed or could be addressed by existing efforts,
  - Discuss a plan to ensure that the recommendations will be addressed.
- Assist NCI in tracking progress over the next several years.

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## Acknowledgements:

- Participants in the Pancreatic Cancer Roundtable
- NCI Staff: Kevin Callahan, Annabelle Uy, Kate Nagy
- Science Writer: Suzanne Reuben

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