nature medicine

# A cure for cancer research

**The National Cancer Institute is the most important cancer funding agency in the US. Yet criticism of some of its programs underscores the need for change and modernization of this institute. With the recent appointment of a new NCI director, the time for change has arrived.**



On 12 July, Harold Varmus was sworn in as the fourteenth director of the US National Cancer Institute (NCI). A Nobel laureate, recent president of Memorial Sloan-Kettering Cancer Center and former director of the National Institutes of Health (NIH), Varmus takes over an agency in want of his well-honed administrative skills, his grounding in the scientific method and his unfettered support of basic research.

The NCI is charged with supporting cancer research, training and the dissemination of healthcare information. Research project grants, supporting both basic and clinical research, comprised 43% of the NCI's 2009 budget, whereas intramural research took 16% of the available funds. For the fiscal year 2010, the NCI budget topped $5 billion, and Varmus' predecessor, John Niederhuber, requested a 3.2% increase for 2011. Although the NCI budget is large, it saw little increase between 2004 and 2009—in some years experiencing a decrease—leaving cancer researchers feeling the pinch and casting an ever-critical eye on the distribution of the NCI's funds.

Varmus is credited with launching a doubling of the NIH budget over 5 years during his tenure as director of the NIH. But in view of the persistent economic downturn and the lack of vocal advocates of science in the current US legislature, Varmus is unlikely to secure a substantial increase in the NCI budget in the near future. Yet, as director of the NCI, Varmus will have greater control of the budget than he did at the NIH, where the directors of the individual institutes control their separate budgets and direct their scientific programs. This means that he can potentially affect much greater change in the scientific direction of the NCI and in the efficiency of this agency than was feasible when he was director of the NIH, a possibility that will no doubt cause both relief and concern among the intramural and the extramural communities, given the cuts that will undoubtedly ensue in an effort to best use the NCI's resources.

Varmus must also manage the NCI budget in the context of a $1.26 billion one-time increase that the American Recovery and Reinvestment Act awarded to the NCI in 2009. And although the infusion of new funds into any community is welcome, without budget increases that can sustain the funding spike, the newly supported programs and research will undoubtedly suffer.

One of the areas most likely to come under immediate budgetary and administrative scrutiny, and which Varmus concurs is in need of an overhaul, is the NCI's Clinical Trials Cooperative Group Program. The program manages large-scale trials each year involving more than 25,000 patients and 3,100 institutions in the US, Canada and Europe. In April of this year, the National Academy of Sciences released a report detailing the extensive problems in the cancer clinical trials system operated by the Cooperative Group Program (also see *Nat. Med.* **16**, 623, 2010). The program should provide much-needed infrastructure to coordinate these multinational clinical trials to reduce waste and redundant effort. However, inefficiency, an inability to initiate trials in a timely manner, a lack of innovative science in trial design and poor use of restricted resources were highlighted in the report as key deficiencies in the current system that, collectively, are inhibiting the rapid translation of effective new therapies to the clinic. Group member institutions and clinical investigators have criticized the program for what is considered inadequate compensation, as well as for being a highly politicized and bureaucratic entity, and many NCI Cooperative Group clinical sites have indicated that they will curtail future involvement with the program's trials, opting for participation in industry trials instead.

But the Cooperative Group Program is not alone in requiring re-evaluation. The quality of results derived from many of the funded programs—both intramural and extramural, such as the SPORES and the NCI-designated cancer centers—should all be subject to review to ensure that the NCI can respond to the needs of people with cancer and cancer researchers in 2010 and beyond.

Varmus set the tone in his first speech to the NCI community, stressing the importance of evidence-based efforts and setting achievable goals, the crucial role of basic science in the development of therapies that improve human health and the need to reflect and incorporate in the clinic the latest advances of that research.

In 2003, then NCI Director Andrew von Eschenbach set as an ambitious goal the elimination of pain and suffering due to cancer by 2015. And although the 2009–2010 update of the Cancer Trends Progress Report issued by the NCI indicates that the survival rate of Americans with cancer is indeed rising and the overall cancer incidence in this country is falling, more than 500,000 individuals will die from cancer this year in the US alone, and cancer is predicted to be the leading cause of death worldwide for 2010. Clearly the war on cancer is not yet won. But, with change imminent at the NCI, the future looks much brighter.