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## **Clinical and scientific impact of National Cancer Institute: Sponsored clinical trial network group treatment trials**

J.M. Unger<sup>1</sup>, M. LeBlanc<sup>1</sup>, M. Bertagnolli<sup>2</sup>, N. Wolmark<sup>3</sup>, W.J. Curran<sup>4</sup>, P.J. O'Dwyer<sup>5</sup>, M.D. Schnall<sup>6</sup>, R.S. Mannel<sup>7</sup>, J.P. Costantino<sup>8</sup>, R.J. Gray<sup>9</sup>, F. Zhao<sup>9</sup>, F. Hong<sup>10</sup>, M. Bah<sup>11</sup>, R. Vaidya<sup>11</sup>, C.D. Blanke<sup>12</sup>

<sup>1</sup> Public Health Sciences Division, Fred Hutchinson Cancer Research Center, Seattle, WA, USA, <sup>2</sup> Surgical Oncology, Brigham and Women's Hospital, Boston, MA, USA, <sup>3</sup> Allegheny Cancer Center, Allegheny General Hospital, Pittsburgh, PA, USA, <sup>4</sup> Medicine Department, Winship Cancer Institute of Emory University, Atlanta, GA, USA, <sup>5</sup> Medical Oncology, University of Pennsylvania - Franklin Building, Philadelphia, PA, USA, <sup>6</sup> Medical Oncology, Verwoerd Hospital, Pretoria, South Africa, <sup>7</sup> Medical Oncology, Stephenson Cancer Center, Oklahoma City, OK, USA, <sup>8</sup> Biostatistics, The University of Pittsburgh, Pittsburgh, PA, USA, <sup>9</sup> Biostatistics, Dana Farber Cancer Institute, Boston, MA, USA, <sup>10</sup> Biostatistics, Harvard University, Boston, MA, USA, <sup>11</sup> Public Health Sciences Division, Fred Hutchinson Cancer Research Center, Seattle, WA, USA <sup>12</sup> Medicine Department, SWOG Cancer Research Network, Portland, OR, USA

### **Background**

In the U.S., the NCI National Cancer Clinical Trials Network (NCTN) groups have conducted publicly funded cancer research for more than 50 years. A major aim of the groups is to identify effective new treatments for patients with cancer. The impact of all adult network group trials has never been systematically examined.

### **Methods**

We identified randomized, phase III trials from the adult NCTN groups (SWOG, Alliance, NRG, and ECOG-ACRIN), reported from 1980 onward, with statistically significant findings for at least one clinical, time-dependent outcome. Gains in population life-years attributable to the network-group trials were calculated by: 1) deriving trial-specific hazard functions and hazard ratios to estimate area under the Kaplan-Meier survival curve between standard and experimental treatments, and, 2) mapping the trial-level benefit of experimental treatment onto the U.S. cancer population using national cancer registry and life table data. Life-years were estimated from trials for which overall survival favored the experimental treatment arm. Scientific impact was assessed according to citation data from Google Scholar. Results were estimated through January 1, 2020.

### **Results**

In total, 163 trials comprised of N=108,102 patients were analyzed, representing 30.9% (163/528) of estimated trials conducted. The most common cancers included breast (33), gynecologic (28), lung (15), and prostate (12). The trials were cited 166,771 times (mean, 64 citations/year/trial). Overall, 128 trials showed overall survival favoring the experimental arm; these trials were estimated to have generated gains of 14.0 million life-years to cancer patients. Evaluations of the rate at which these trials influenced clinical care guidelines and the cost per life-year gained are ongoing and will also be analyzed and presented.

### **Conclusions**

NCTN randomized trials have generated substantial gains in life years for patients with cancer and have enormous influence on the cancer field, as reflected by the extent to which they are cited in other research studies. Collectively the efforts of the NCI network groups have demonstrated the critical role of government-sponsored cancer research in extending the lives of patients with cancer.

### **Legal entity responsible for the study**

SWOG Cancer Research Network.

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### **Disclosure**

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