

CareerTrac: A Multi-Institute Trainee Tracking System

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Abstract

Training is a specific and critical component of all NIH Institutes and Centers. CareerTrac is a trainee tracking database that can be used to assess progress towards program goals and inform management decisions about health research training programs. The Fogarty International Center began developing the system over 10 years ago and the National Institute of Environmental Health Sciences has been a partner since 2008. Newer partners include the National Institute of General Medical Sciences ("Bridges" Programs), the National Library of Medicine, and the Center for Research Cancer Health Disparities at the National Cancer Institute. CareerTrac provides a custom interface for each participating organization, but houses all information in the same integrated database.

Currently, the system includes outcome data for more than 20 thousand trainees, including many that are formally appointed using xTrain appointment forms, and many that are not appointed through xTrain.

The ability to capture a broad range of long-term outcomes is essential in showing the success of trainees. CareerTrac enables ICs and Principal Investigators to follow and record trainee outcomes over time. CareerTrac fosters this type of analysis by providing the opportunity to track accomplishments such as employment, funding, publications and patents.

CareerTrac data are regularly reported to program staff and IC leadership and have been utilized for Congressional reporting. CareerTrac is poised to guide program decision making for research training programs, illustrate returns on investments in research training, and provide a comparative analysis of program efficiencies. Other benefits of the CareerTrac system include its ability to leverage existing IMPAC II and Commons data; the use of standardized terminology to facilitate analysis across ICs; and the use of structured response options for certain fields such as degree, to minimize data entry errors.

Principal investigators (PIs) and their Assistants (PIAs) enter data on behalf of trainees. Trainees do not have direct access to CareerTrac.

This poster provides an overview of CareerTrac, including details of demographic, training and outcome data being collected and highlights data challenges associated with key indicators (such as time to degree for pre-doc participants).

CareerTrac Training Programs

FIC: The Fogarty International Center (FIC) tracks trainees supported under research training grants and fellowship programs using D43, U2R or R25 mechanisms. FIC's training programs invest in a variety of topics vital to global health ranging from bioethics to chronic disease to informatics to HIV/AIDS. Fogarty programs have supported long-term research training for over 4,500 scientists in more than 100 countries, in collaboration with over 230 U.S. and LMIC research institutions.

NIEHS: T32 Training Program: Supports research training opportunities for individuals, selected by the university or institution, who are training for research careers in environmental health sciences. Both pre-doctoral and post-doctoral trainees are supported.

Superfund Research Program: Supports graduate students and Post-Doctoral researchers in its P42 and R01 programs. Using CareerTrac data, the SRP analyzes trainee accomplishments and presents findings at its annual meeting. CareerTrac also provides information that allows SRP staff to connect trainees with each other (e.g., finding trainees with similar expertise) and to search for trainees and alumni that can be invited as participants to workshops and conferences.

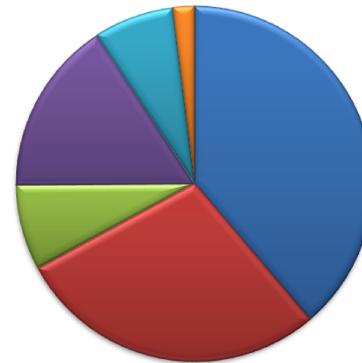
NIGMS: R25 Bridges to Baccalaureate: The program is aimed at helping students make the transition from 2-year junior or community colleges to full 4-year baccalaureate programs. The purpose of the program is to increase the pool of community college students from underrepresented backgrounds who go on to research careers in the biomedical sciences and will be available to participate in NIH-funded research.

R25 Bridges to Doctorate: The program is aimed at helping students make the transition from master's degree programs to Ph.D. programs. The purpose of the program is to increase the pool of master's degree students who go on to research careers in the biomedical sciences and will be available to participate in NIH-funded research.

NLM: T15 Training Program: Supports pre-doctoral and post-doctoral training programs leading to research careers in biomedical informatics.

Center to Reduce Cancer Health Disparities (CRCHD): The National Cancer Institute (NCI) Center to Reduce Cancer Health Disparities (CRCHD) Continuing Umbrella of Research Experiences (CURE) program offers training and career development opportunities to enhance and increase diversity in the cancer and cancer health disparities research workforce. The CURE program identifies promising candidates from high school through early stage investigator levels, and provides them with a continuum of funding opportunities for training and career development in cancer and cancer health disparity research. In the past ten (10) years, the CURE program has provided research training for over 3210 scholars ranging from high school students to early stage investigators. CRCHD currently uses CareerTrac in tracking its trainees supported by NCI Diversity/Re-entry Research Supplements and Supplements to the CURE program.

CareerTrac Trainees (~21,000 total)



- FIC/NCI
- NIEHS:T32
- NIEHS: Superfund
- NIGMS
- NLM
- NCI-CRCHD

Robust Reporting including Three NRSA Tables

Over 30 reports are available in CareerTrac. These are grouped into several categories.

Report Category	Examples
In Training/ Education Reports (5)	<ul style="list-style-type: none"> Top Fields of Training (<i>What are they studying?</i>) Number of PreDocs who complete Ph.D. (<i>Do they finish?</i>) Prior Academic Degree (<i>Where do they come from?</i>)
NRSA Reports (9)	<ul style="list-style-type: none"> Table 5A (Pre-Docs), 5B (Post-Docs), 5C (All) Table 6A (Pre-Docs), 6B (Post-Docs), 6C (All) Table 12A (Pre-Docs), 12B (Post-Docs), 12C (All)
Accomplishments (14)	<ul style="list-style-type: none"> Employment by Sector (<i>Where are they now?</i>) Post Training Education Report (<i>What other degrees do they get?</i>) Career Highlight Report (<i>What narratives have been added?</i>)
Administrative (11)	<ul style="list-style-type: none"> Full Database Export (<i>Show me all the CT data</i>) PIA Review Report (<i>Who has CT accounts for your T32</i>)

Top Fields of Training

Code	Field of Training	Number of Trainees	Percentage of Trainees	PF 2004	PF 2007	PF 2008	PF 2009	PF 2010	PF 2011	PF 2012	PF 2013	PF 2014	PF 2015
1115	Psychology	1115	42.8%	1	1	1	1	1	1	1	1	1	1
1900	ENVIRONMENTAL SCIENCE	18	8.9%	4	4	3	3	3	3	3	2	2	2
4410	Biostatistics and/or BI	209	8.0%	2	2	2	2	2	2	2	2	2	2
2820	Developmental	171	6.3%	3	3	4	4	4	4	4	4	4	4
2870	Developmental and Epi	111	4.2%	9	9	8	8	8	8	8	8	8	8
1100	BIOCHEMISTRY	72	2.7%	8	8	8	8	8	8	8	8	8	8
1810	Cell Biology	67	2.5%	6	6	7	7	7	7	7	7	7	7
2800	MOLLECULAR BIOLOGY	209	2.0%	9	9	8	7	8	7	9	11	14	9
1110	Biological Chemistry	51	1.9%	10	8	8	9	11	14	13	12	12	12
3900	PUBLIC HEALTH	47	1.8%	14	13	15	0	14	9	6	7	7	6
3200	PHARMACOLOGY	46	1.8%	11	7	9	14	0	15	9	10	9	9
4420	Biophysics	45	1.7%	13	9	10	10	9	9	8	8	7	7
1400	Developmental Biology	40	1.5%	7	7	11	12	12	11	10	10	11	11
2070	Molecular Genetics	27	1.0%	16	10	13	13	9	8	7	9	8	10

Details for accomplishments can be downloaded separately or in a master report.

Easy export for Field of Training Data

Three of the twelve NRSA tables needed for renewal applications and progress reports can be generated with CareerTrac.

Selected Career Highlights

Year	Career Highlight	Description
2014	Deputy Director, NIEHS/NIH P30 Environmental Health Sciences	
2013	Director of Research	Co-founded non-profit organization (Human Rights Data Analysis Group), serving as Director of Research
2013	Diplomate of the American Board of Toxicology	Diplomate since 2013 to present (2014).
2014	Director, Air Quality Initiative	Direct air quality research program for Marron Institute on Cities and the Urban Environment
2011	Research Assistant	Chulabhorn Research Institute Translational Research Unit, Bangkok, Thailand, Mayruay Phangthong, PI
2012	Cleveland Clinic Research	Lead Postdoctoral Fellow for the Cardiology Heart Transplant Team
2012	NIEHS P30 Director	Appointed as Director of, MIT Center of Environmental Health Sciences
2007	Postdoctoral Fellow	Postdoctoral Fellowship in the Center for Immunology and Inflammatory Diseases at Massachusetts General Hospital

Qualitative data can be added to highlight other training achievements

Intuitive User Interface

Users add accomplishment data through intuitive user interfaces. Examples for employment and publications are shown here.

Employment

Training status while employed in this position

Employment Year Begin: Select the start year... Employment Year End: Select the end year...

Job Title: [Text field]

Country of Employment: Select a country... Region: n/a

Employer: Select a country first...

Employment Sector: Select a sector... What is the major emphasis of this position? Select an emphasis...

Is this a post-doc position? Yes No

Which of the following best describes the tenure status of this position? Select a tenure status...

If applicable, please select a topic area for this position: Not Applicable

Publications

Search Published by Author: First Name, Last Name, Article Title

Search Published by PMID or PMCID

Matching publications: 9

Publication Title	Journal Name	Authors	Pub Date
Evaluating competency and campus environmental public health programs.	Progress in community health partnerships: research, education, and action	Pettibone KG, Parris J, Creasant SP, Drew CH	2014 Summer
Greatist NIEHS: A new tool for tracking projects at the National Institute of Environmental Health Sciences.	Research Evaluation	Drew CH, Pettibone KG, Ruben E	2013 Dec
Measuring partnership activities: partnerships in environmental public health perspectives	Environmental health perspectives	Drew CH, Pettibone KG, O'Fallon LR, Colman GW, Birnbaum LS	2012 Jul
Toward the assessment of scientific and public health impacts of the National Institute of Environmental Health Sciences Extramural Asthma Research Program using available data	Environmental health perspectives	Liebow E, Phelps J, Van Houten B, Rose S, Ojura C, Cohen J, Moore P, Drew CH	2009 Jul
NIEHS extramural global environmental health portfolio: opportunities for collaboration.	Environmental health perspectives	Drew CH, Barnes MI, Phelps J, Van Houten B	2008 Apr

Robust series of employment metrics

Dropdown menus structure data

Yellow indicates required field

Lists of accomplishments build over time.

Users can view, edit or delete accomplishments

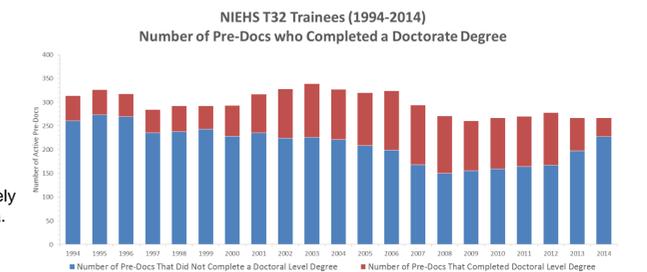
Data Challenges

Missing data creates challenges for calculating indicators such as PHD completion rate and time to first RPG.

PHD Completion

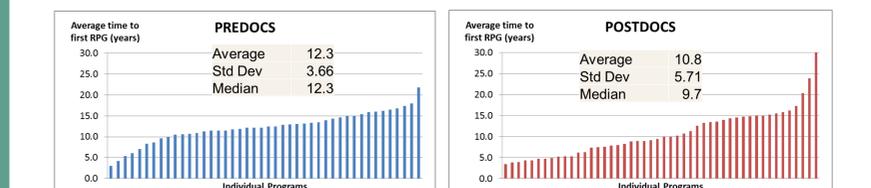
Current data indicate that relatively few Pre-Docs complete their doctoral degrees, mostly because education records are not complete.

Blue bars in this graph likely represent incomplete data.



Time to First RPG:

Given the missing education data, we have attempted to use the training end date as the starting point for the calculation. This likely skews the data to suggest that a longer time is needed to obtain the first RPG.



Acknowledgments

CareerTrac benefits from a great deal of input from program, leadership and administrative staff at all the ICO partners. We acknowledge and appreciate this support.