

Research Brief

Estimating the Operational Training Needs of Air Force Fighter Squadrons

To maintain U.S. combat readiness, Air Force fighter pilots must receive an adequate amount of operational training during peacetime. Less experienced pilots fly training sorties under the supervision of senior pilots in order to acquire the variety of skills they need for combat operations. In recent years, the reduction in the number of fighter squadrons in the force structure, the loss of experienced pilots due to retirement and attrition, and the reduction in funding for training sorties has made it difficult for the Air Force to absorb new pilots in a timely way. This problem has resulted in an overall decline in the experience level of fighter squadrons.

As part of ongoing research on pilot training, RAND Project AIR FORCE (PAF) has developed mathematical models that enable analysts to predict future operational training needs for fighter squadrons. Different versions of the models exist for A/OA-10, F-16G, F-16J, F-15C/D, and F-15E squadrons.

- ***An optimization model calculates the minimum number of sorties needed to train a given fighter squadron.*** Analysts specify the numbers of aircrew members in different positions (and with distinct capabilities) within a squadron and their levels of experience. Recognizing the underlying skills and the variety of sorties where those skills can be learned and practiced, the model calculates how many sorties must be flown per half-year to provide all crew members with adequate training. Analysts can use this model to plan future training needs and to examine how different manning configurations may raise or lower sortie requirements.
- ***A simpler “repro” model reproduces selected results from the optimization model and shows how suboptimal conditions would affect pilot absorption.*** For example, analysts can examine how reduced sorties, overmanning, and undermanning would affect the time it takes newcomers to acquire adequate experience and skills.

PAF is using these models for further research such as exploring how organizational changes or greater use of flight simulators would affect training requirements. These efforts will help the Air Force identify effective options to improve its absorption of new fighter pilots.

This research brief summarizes the findings of RAND Project AIR FORCE work that is fully described in *Models of Operational Training in Fighter Squadrons*, James H. Bigelow, William W. Taylor, S. Craig Moore, and Brent Thomas, RAND Corporation, MR-1701-AF, 2003, 132 pp., ISBN 0-8330-3465-0.

Copies of this research brief and the complete report on which it is based are available from RAND Distribution Services (Telephone: 310-451-7002, toll free 877-584-8642; FAX: 310-451-6915; or email: order@rand.org). Abstracts of RAND documents may be viewed at www.rand.org. Publications are distributed to the trade by NBN. RAND® is a registered trademark.

The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. Its publications do not necessarily reflect the opinions or policies of its research sponsors.

RAND

1700 Main Street, P.O. Box 2138, Santa Monica, California 90407-2138 * Telephone 310-393-0411 * FAX 310-393-4818
1200 South Hayes Street, Arlington, Virginia 22202-5050 * Telephone 703-413-1100 * FAX 703-413-8111
201 North Craig Street, Suite 202, Pittsburgh, Pennsylvania 15213-1516 * Telephone 412-683-2300 * FAX 412-683-2800

RB-107-AF (2003)