Mortality Rates at Oldest Ages

R.C.W. "Bob" Howard, FSA, FCIA

Presented at the Living to 100 Symposium Orlando, Fla.

January 5-7, 2011

Copyright 2011 by the Society of Actuaries.

All rights reserved by the Society of Actuaries. Permission is granted to make brief excerpts for a published review. Permission is also granted to make limited numbers of copies of items in this monograph for personal, internal, classroom or other instructional use, on condition that the foregoing copyright notice is used so as to give reasonable notice of the Society's copyright. This consent for free limited copying without prior consent of the Society does not extend to making copies for general distribution, for advertising or promotional purposes, for inclusion in new collective works or for resale.

Abstract

Because of a lack of data, the highest age mortality rates in most tables are conjectural. This paper presents a method for using death records to infer exposure on nonextinguished cohorts, thereby allowing the development of a credible table for high ages. The method uses Whittaker-Henderson graduation in a number of unusual ways. The paper also validates the method by applying it to stochastically generated sets of death records for which the underlying mortality and improvement tables are known. There are some surprising results.