

Barriers to Translation: Report of the National Heart, Lung, and Blood Institute (NHLBI) Working Group on Hypertension

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ABOUT THE STUDY

Globally Cardiovascular Disease (CVD) and stroke-related deaths and disabilities are still primarily attributed to hypertension. A significant increase in the number of patients with diagnosed and undiagnosed hypertension was documented in the 2017 American College of Cardiology (ACC)/American Heart Association (AHA) clinical practise guidelines on hypertension. According to data from the Systolic Blood Pressure Intervention Trial (SPRINT), intensive Blood Pressure (BP) lowering can considerably reduce CVD events and mortality. The mortality rate associated with hypertension is still rising in the United States, despite substantial research and the availability of numerous pharmacological approaches that are beneficial. This suggests that despite the dedication and sizeable investments made over the past three decades by NHLBI and other funding agencies, the translation of basic science discoveries and knowledge of pathophysiology into better treatments that can reach a variety of patient population groups remains insufficient. The working group's objectives were, present a summary of recent findings that may be ready for testing in pre-clinical and clinical studies; identify knowledge gaps that obstruct translation; highlight the most promising scientific fields to pursue translation; identify key challenges and barriers for moving basic science discoveries into translation, clinical studies, and trials; identify barriers for effective dissemination.

The working group included 16 professionals in the field of hypertension research from several fields, including population, clinical, fundamental, and translational sciences. In order to promote interdisciplinary conversation, generate creative ideas for future research pathways, and pinpoint significant obstacles in hypertension research and clinical application, the members were chosen from a variety of disciplines of hypertension research. Staff from the NHLBI organized, hosted, and took part in these discussions. The working group concentrated on the main difficulties and impediments to fundamental science translation through clinical trials and application. The five topic-

specific sessions looked at potential roadblocks to basic science discovery leading to novel therapeutic interventions, translation into clinical trials, and progression from clinical trials to clinical practice, and implementation of clinical findings and guidelines in real-world settings and settings. Many of the goals in the NHLBI Strategic Vision were addressed in the workshop, such as, Understand normal biological function and resilience, Examine recently identified path biological mechanisms crucial to the onset and development of HLBS (heart, lung, blood, and sleep) diseases, Discover the causes of individual variations in pathobiology and treatment responses, Create and improve novel diagnostic and therapeutic approaches to prevent, treat, and cure HLBS diseases, Boost clinical and implementation research to enhance health and lessen disease, and Use emerging technologies. The 8th objective-further build, diversify, and sustain a scientific workforce capable of carrying out the NHLBI's mission-was not specifically addressed during the workshop.

Ranslation of discovery science

We posed numerous crucial questions to the working group in order to pinpoint issues, find remedies, and identify prospective openings for successful fundamental science to clinical science translation.

Could the discovery of additional factors that contribute to the pathophysiology of hypertension result in potent new treatment approaches? Are new treatments in the works, and how can discoveries made in basic science labs translate into novel therapeutic therapies? What difficulties arise when evaluating next actions following the discovery of a new regulator of arterial blood pressure? The potential for these (and other) recent discoveries to facilitate the development of novel therapeutic medicines was studied. These discoveries have enhanced our understanding of the fundamental mechanisms regulating arterial pressure, generating hypertension and its CVD effects. The talk was meant to give concrete instances rather than a thorough accounting of all benefits from contemporary hypertension study.

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