From the Editors' Desk: Why NCATS Should Read this Issue of *JGIM*

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The National Center for Advancing Translational Sciences (NCATS) is the new federal home for the NIH Clinical and Translational Science Award (CTSA) program. There are now 60 CTSA programs nationwide. Many academic general internists are deeply involved with their own institutional CTSA and have helped to articulate an expansive vision of translational research that includes translation of advances in biomedical and clinical research into testing in clinical settings and dissemination into practice and the community.

The CTSA program stands at a crossroads as it transitions to NCATS. According to NIH Director Francis Collins, “The mission of NCATS is to catalyze the generation of innovative methods and technologies that will enhance the development, testing and implementation of diagnostics and therapeutics across a wide range of diseases and conditions.” NIH has requested public comment on current NCATS priorities for CTSA. One issue of concern to many is that the full spectrum of translational research continue to receive due attention.

JGIM will not be corresponding directly with NIH. However, if NCATS leaders are looking for evidence that filling gaps across the entire translational spectrum from research to implementation is critical to the nation’s health, they need look no further than this issue of the journal.

Blood pressure is among the most important modifiable risk factors for coronary heart disease and stroke. This principle has been established for decades, but high blood pressure remains a leading cause of preventable morbidity and mortality. According to NHANES data from 1999–2000, among US adults with hypertension, 30% were unaware. Among the remainder, 59% were receiving treatment, and of those, only 34% achieved acceptable control. Thus it is clear that resolving this massive public health problem depends not only on bringing new anti-hypertensives to market (bench-to-bedside, the first translational step, “T1” research) but also on raising public awareness, accurately identifying patients who need treat-

ment, promoting adherence and assuring that best treatment practices are disseminated and implemented (translation into widespread care and policy, “T3” and “T4” research).

To identify patients with hypertension and to monitor treatment effectively requires good measurement technique. In this issue of *JGIM*, **Gretchen Ray and colleagues** provide evidence that measuring blood pressure is anything but simple. In a small but elegant study, they assessed blood pressure in 40 patients following two approaches: the traditional triage method (which in our clinic often means rushing late-arriving patients into a chair and slapping on an automated blood pressure cuff) and the American Heart Association approved method (which includes attention to an adequate period of rest, body position, cuff size, and taking blood pressure in both arms). Overall, 93% of patients had a blood pressure difference between the two methods of at least 5 mm Hg systolic or at least 2 mm Hg diastolic. As highlighted in an editorial by **Umscheid and Townsend**, these differences may be large enough to change management. As in so many other areas of medicine, achieving more accurate clinic-based measures may require enlisting the patient as an active partner in care. “Shouldn’t you be using a larger cuff?” may be just as important to ask as, “Did you remember to wash your hands?”

Once hypertension is diagnosed, physicians must select appropriate anti-hypertensive medications. In an updated systematic review on the comparative effectiveness of ACE-inhibitors, angiotensin receptor blockers (ARBs), and direct renin inhibitors, **Powers et al.** conclude that there are no meaningful differences between ACE-inhibitors and ARBs for any outcome except medication side effects. However, in an accompanying editorial, **Smetana** warns that only ACE-inhibitors (and not ARBs) have been shown to reduce hard outcomes (cardiovascular events and mortality) among those who have already suffered an event (i.e., in secondary prevention settings). The editorial is a cautionary tale for those who are tempted to place undue trust in proxy outcomes, even well-validated ones like blood pressure.

NHANES data make it clear that treating blood pressure is not simply a matter of setting and forgetting. Vigilant monitoring is required to gauge whether therapy is effective, and if not, to ascertain why. In a randomized trial involving 415 minority patients with a history of hypertension, **Herbert et al.** evaluated the effects of a nurse management intervention combining an in-person visit, periodic phone

calls, and home blood pressure monitoring over 9 months. The results show significant improvements in systolic blood pressure over this period in the intervention group compared with the control group. This study is an important example of T2/T3 translational research and underscores the important message that interventions to improve uptake of evidence-based practices by clinicians and patients must be tailored to the clinical, psychological, and cultural characteristics of the target population. Dissemination and implementation (D&I) principles are generalizable, but effective D&I practices are context-specific.

Finally, as confusing as it can be for clinicians and the public, it is important to periodically revisit articles of faith—such as the need to treat all levels of blood pressure elevation with alacrity. In a careful decision analysis examining patients with mild hypertension and Type II diabetes, **Laiterapong et al.** show that forestalling pharmacotherapy for up to one year is unlikely to be harmful and may allow time for patient acceptance of the diagnosis and an adequate trial of lifestyle interventions. On the other hand, much longer delays in treatment are associated with serious morbidity and mortality. These results challenge recent literature urging physicians to combat “therapeutic

inertia” by always treating hypertension early and aggressively. If the results are validated using more recent clinical data, guidelines and performance standards for hypertensive patients with Type II diabetes may need to evolve to allow for a reasonable trial of lifestyle modification before insisting on drug therapy.

As exemplified by hypertension, research along the entire translational spectrum is essential for solving complex public health problems. As the CTSA program is moved into NCATS, where the focus will be on furthering the methods of translation across the entire T1 to T4 spectrum, it will be critical to remember that without translation into practical and effective use, there is no impact on health. That the NIH has invested in translational science is commendable. That it remember the crucial role of the implementation end of the translational spectrum is more important than ever.

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