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Reply: Intravenous Drug Use Associated Endocarditis Complicating Research of Antibiotic Prophylaxis and Guideline Recommendations

Martin H Thornhill MBBS, BDS, PhD[a,b], Mark J Dayer MBBS, PhD[c], Vivian H. Chu MD[d], Patrick T. O'Gara MD[e] and Larry M. Baddour MD[f]

[a]Unit of Oral & Maxillofacial Medicine Surgery and Pathology, School of Clinical Dentistry, University of Sheffield, Sheffield, UK; [b]Department of Oral Medicine, Carolinas Medical Center, Charlotte, NC; [c]Department of Cardiology, Taunton and Somerset NHS Trust, Taunton, Somerset, UK; [d]Division of Infectious Diseases and International Health, Duke University Medical Center, Durham, NC; [e]Department of Cardiology, Brigham and Women's Hospital, and Harvard Medical School, Boston, MA; [f]Division of Infectious Diseases and Department of Cardiovascular Diseases, Mayo Clinic College of Medicine, Rochester, MN.

Correspondence to:

Prof. Martin Thornhill, Unit of Oral & Maxillofacial Medicine Surgery and Pathology, University of Sheffield School of Clinical Dentistry, Claremont Crescent, Sheffield S10 2TA, UK. Email: m.thornhill@sheffield.ac.uk

Disclosures:

Drs Thornhill, and O'Gara received support from the Delta Dental Research and Data Institute for the submitted work. Dr O'Gara reports receiving support in the last 3 years from Medtronic, Edwards Scientific and the National Heart Lung Blood Institute, that was unconnected to the submitted work; Dr Dayer reports receiving reports from Biotronik in the last 3 years, that was unconnected to the submitted work; none of the other authors report a financial relationship in the previous 3 years with companies that might have an interest in the submitted work. Drs Thornhill, and O'Gara have no nonfinancial interests that may be relevant to the submitted work. Dr Chu reports authorship of 'UpToDate', Dr Baddour, as a member of the American Heart Association's Committee on Rheumatic Fever, Endocarditis and Kawasaki Disease, was involved in writing the 2007 American Heart Association guideline on prevention of infective endocarditis; also, he is a paid consultant of Boston Scientific. Dr Dayer was a consultant to the review committee that produced the 2015 update to NICE clinical guideline 64 on prophylaxis against infective endocarditis.

Dr. Eddinger has focused on an important contemporary aspect of the epidemiology of infective endocarditis (IE), which has become a marker of the ongoing opioid epidemic in the United States. As evidenced in Dr. Eddinger's local experience, persons who inject drugs (PWID) now constitute an increasing proportion of patients who develop IE (1,2) and the human and healthcare costs related to such have been unprecedented.

An analysis of PWID within the dataset described in our paper (3) would be of interest and we examined the possibility of doing this. Unfortunately, it is not possible for this to be done without new data abstraction and methodology. As Dr. Edinger points out, a further difficulty is that the ICD-9/10 coding system does not include codes for injection drug use. One is reliant on surrogate markers such as hepatitis C infection (not specific for PWID) or drug dependency/use codes that do not distinguish between injection and non-injection dependency/use. To address this, researchers have implemented different coding algorithms to detect PWID. However, in a study that used two such algorithms, there was a nearly 5-fold difference in the number of PWID-associated IE cases identified (1), highlighting the risk of misclassifying cases using current coding systems.

The disparity in PWID representation in different sectors of the healthcare system, and hence different data sources, is also a problem. A recent North Carolina study (2) found different PWID-associated IE rates between different health insurance payers: Private (12%), Medicare (17%), Medicaid (35%), Self-pay/uninsured (34%), Other/unknown (3%). Since our data only included Private and Medicare-related data, it is likely the impact of PWID-associated IE would have been smaller than had we also included Medicaid and self-pay/uninsured data. Indeed, because we quantified changes in antibiotic prophylaxis prescribing between 2000-2015, we were unable to use Medicaid data (see Methods section) because of a large age-distribution

change in enrollees with Medicaid-covered prescription drug benefits, caused by the transfer of Medicaid patients who were Medicare eligible to Medicare Part D prescription drug coverage in January 2006 (see on-line figure 1c).(3) We were unable, therefore, to include Medicaid data in our study.

Current coding systems are frustrating, as they are inadequate to permit analysis of important healthcare questions like this. Hopefully, coding system changes will allow us to do so in the future.

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