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New Bioinformatics Program Identifies Behavioral Medicine Interventions for Epidemic Cardiovascular Disease in the Developing World: Analysis of Multidisciplinary Findings for Launching a New Global Public Health Initiative in Heart-Brain Medicine

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The Institute of Medicine of the National Academy of Sciences recently reported that cardiovascular disease has become “an emerging epidemic” and one of several principle causes of morbidity and mortality in the developing world.^{1,2} The Institute further recommends behavioral medicine as one of the interventional components with “huge potential” for combatting this epidemic.^{1,3}

Behavioral medicine is central to the basic scientific, theoretical, and clinical core of heart-brain biology and medicine, and recent research has identified contemporary (eg, biofeedback) and traditional (eg, meditation, yoga) cognitive-behavioral practices which appear to possess significant cardiovascular health-enhancing properties. In fact, more specifically, a recently developed state-of-the-art bioinformatics program in heart-brain biology and medicine (see Bushell⁴ and Bushell et al, in preparation), deriving from advances in “knowledge discovery in databases,”⁵ “literature-related discovery,”⁶ and “expert-guided search construction,”⁷ has identified a regimen of cardiovascular health-enhancing cognitive-behavioral practices (particular forms of meditation, yogic breath control, special physical exercises, and dietary practices) which, according to recent evidence (reviewed in Bushell et al, in preparation) *can be particularly well suited for dissemination, training, and practice in the context of the developing world*. Preliminary evidence demonstrates significant efficacy of this regimen with respect to enhancements in cardiac vagal tone as reflected in heart rate variability; blood pressure; urinary sodium excretion rate; recovery from acute myocardial

infarction, as reflected in the Short Physical Performance Battery and other measures; treatment of symptoms of advanced heart failure, including systemic vascular resistance and cardiac output; and, according to a recent study,⁸ a 30% reduction in the rate of cardiovascular mortality (all reviewed in Bushell et al, in preparation).

The above data will be reviewed in this presentation in the context of further database development and other plans in behavioral medicine for a new global public health initiative which is in the process of bringing together experts from both “traditional behavioral medicine” (including the Dalai Lama) and the field of heart-brain medicine. The emerging field of heart-brain medicine should follow the admirable lead of the Institute of Medicine (and many others) and include in its mission a “heart-centered,” compassionate commitment to helping as much as possible those struggling against terrible odds with disease in the developing world.

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