



## The multicultural origins of public health: Historical perspective

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Public health has been defined as the art and science of promoting and protecting good health, preventing disease, disability and premature death, restoring good health when impaired by disease or injury, and maximizing quality of life.<sup>1</sup> In literature, public health is portrayed mostly as a product of western civilization, while other world regions are considered recent adopters. To the extent that the west spawned the scientific and industrial revolution, on which basis many of today's public health technologies have benefited, there is some justification for this view. This is reflected in formal histories of public health, which depict it as mostly deriving from Greco-Roman traditions.<sup>2</sup> Such works are the product of enormous scholarship, but there is a need to broaden this perspective to recognize the contributions of other centers of early science and technology development.<sup>2</sup> This editorial intends to recognize these multicultural foundations, so as to promote broader ownership of public health.

To link the multicultural past to present approaches, examples from early history are now classified by contemporary target areas, applying five categories based on principles described elsewhere<sup>3</sup>:

- 1) Safe environments
- 2) Enhanced host resistance
- 3) Health promoting behaviors
- 4) Protection of vulnerable groups
- 5) Prudent and accessible health care

### Safe environments

While the most celebrated work on living environments is *Airs, Waters, Places*, the treatise of Greek physician Hippocrates (circa 400 BCE), actionable knowledge developed independently in many cultures. For example, all ancient peoples

developed the principles of shade and ventilation to accommodate natural weather cycles. Air conditioning technologies first emerged in India and Egypt,<sup>4</sup> Egyptian frescoes (circa 2500 B.C.) show jars of water being fanned to cool rooms; damp cloths across doorways were used to cool circulating air. Likewise, porous water pots, ponds, and water chutes were also used. Throughout ancient Persia, wind towers were built to catch a breeze. Such passive techniques are environmentally sound, attracting attention today in the context of global warming.

Regarding water technologies, systems for water supply, sewage, and private bathing developed independently in Mohenjo-Daro, an urban center of the Indus Valley Harappan civilization (3500-1500 BCE), and in Kahun, a city in Egypt's Middle Kingdom (1700-2100 BCE).<sup>5</sup> In pre-Hispanic America, both Inca (1200-1600 CE) and Aztec civilizations (1100-1400

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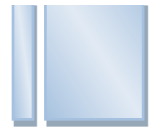
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CE), reveal public health as a civic concern: water supplies, bathrooms, sewage and drainage systems reflect formal public health engineering.<sup>5, 6</sup> And in pre-colonial Africa, there is evidence of hydrology and sanitary engineering: the Ajuran Sultanate (1400-1700 CE) located in what became Somalia, diverted river water to feed cisterns,<sup>7</sup> while the ruins of Gedi, near the Kenyan coast, reveal limestone purifiers to recycle water, piped water to bathrooms and indoor toilets.<sup>8</sup> Meanwhile, Europe reacquired high standards of water and sanitation only in the 19<sup>th</sup> century,<sup>9</sup> in response to epidemic diseases resulting from unsanitary conditions accompanying the industrial revolution. Healthy living conditions are clearly a multicultural legacy.

### Enhancing host resistance

It was in China (circa 600 CE) that "variolation" (administration of small doses of the smallpox virus to ostensibly healthy people to confer protection) was developed and practiced; it was also widespread in India.<sup>10</sup> The concept eventually spread westward, reaching England (circa 1700 CE) through the influence of Lady Montague, wife of the British ambassador to Constantinople, whose children had been variolated in Turkey. Also practiced in Africa, slaves introduced variolation into America: theologian Cotton Mather learned about it from his slave, Onesimus, publicized the technique and the procedure first tried during an epidemic in Boston in 1721.<sup>11</sup> Meanwhile in England, variolation stimulated interest in immunity, and led to the safer practice of "vaccination", following a publication by Edward Jenner in 1798 on the use of cowpox to achieve cross-immunity to smallpox.

Nutrition is equally important to enhancing host resistance and, while it is fair to say that most nutrition science stems from work that is historically relatively recent, the same cannot be said for food preservation technologies. Early societies applied what was conveniently available from nature: in cold climates meat was frozen in ice; in warm climates foods were sun-dried. Other methods common across cultures included fermentation, pickling, and the use of spices. Spices are mentioned in the *Epic of Gilgamaesh* (Mesopotamia circa 2100 BCE), the *Bagavad Gita* (Sanskrit 500-200 BCE), and the *Hebrew*

*Bible* (circa 1500 BCE). Archeologists discovered spices in Egyptian tombs as early as 3000 BC. Trade in spices opened up cultural exchanges, an early force in globalization, contributing to the richness of cultures around the world.<sup>12</sup> Turning briefly to another lasting technology, the Tang dynasty (China 900 CE) developed refrigeration using ice for transportation of perishable foods, and ice houses and pits for storage.<sup>13</sup> Measures to address food security can be found in numerous cultures. For example, the Aztecs developed state run granaries to ensure distribution of food during times of famine.<sup>6</sup>

### Health promoting behaviors

Recognition of the value of physical fitness and meditation arose first in China and India where such teachings have ancient roots. In Japan a public bathing tradition dates from at least AD 552 and linked to Buddhism which taught that such hygiene purified the body and brought good fortune.<sup>14</sup> The iconic Persian physician, Ibn Sina (a.k.a. Avicenna) (981-1037 CE), promoted healthy lifestyles; parenthetically, his encyclopedia *Al-Qanun fi al Tibb*, translated into Latin in the 12<sup>th</sup> century, remained a preeminent medical textbook in Europe until the 17<sup>th</sup> century.<sup>15</sup>

### Protection of vulnerable groups

Common traditions among the earliest societies of all regions included prohibitions against waste disposal within communal areas, assistance at birthing, other mutual support, and burial rites. Ancient practices were not always safe or effective, but the underlying motivation was preservation of the group, and of individuals within it. The earliest known document addressing such provisions is the *Code of Hammurabi* (1780 BCE) of ancient Mesopotamia,<sup>16</sup> which includes the Tigris and Euphrates river valleys, today corresponding with Iraq, Kuwait, and adjacent areas of Syria, Turkey and Iran. The Code's generally harsh rules (by modern standards) included significant public health related edicts. Perhaps more notably, it also contained the first declaration of human rights in history: "To cause justice to prevail in the land... that the strong may not oppress the weak."<sup>17</sup>



### Prudent and accessible health care

This too seems to have been first addressed by the Code of Hammurabi: "Everybody under Babylonian rule was covered by the Codex's managed health care system, but not all received equal treatment."<sup>18</sup> And as a final observation, a *Census* is the single most important tool for the construction of a population profile, for health or other development applications e.g., education; the earliest census was carried out by the Babylonians (circa 4000 BCE).<sup>19</sup>

### CONCLUSION

It is my hope that this editorial may stimulate thought on the need to develop a broader literature that reflects public health as a discipline with multicultural roots and ownership. There is a need for public health scholars to document historical contributions from around the world. This reasoning also justifies this modest revision to the definition given in the opening sentence: *Public health is the art, science and culture of promoting and protecting good health, preventing disease, disability and premature death, restoring good health when impaired by disease or injury, and maximizing quality of life.*

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