

The blues and pellagra: a public health detective story

Sonny Terry and Brownie McGhee made popular the blues song, "I don't want no cornbread, meat and black molasses." Sonny learnt the song as prison "holler." The song arose from one of the great, but little celebrated public health detective stories.

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Joseph Goldberger, an epidemiologist with the American public health service in the early part of the century, was assigned to investigate the fearful prevalence of pellagra among poor black people in the Deep South. Pellagra killed 7000 people every year; 50 000 were affected by it. The disease is characterised by dermatitis, diarrhoea, and dementia. Popular wisdom said that this was an infectious disease, promulgated in poverty and poor hygiene.

Goldberger became convinced that pellagra was caused by dietary deficiency. He persuaded 16 other members of the American public health service to join him and his wife as guinea pigs in an experiment to assess its transmissibility. Each had inoculations of skin squames from people with pellagra, had nasal excretions applied to the mucosa of their noses, and ingested stool samples on rice cakes.

Goldberger believed that the deficiency was in the staple diet of the poor black people---cornbread, fat meat, and black molasses. Pellagra was seen in communities reliant on maize. Goldberger tested experimental diets on inmates of mental hospitals and Rankin prison farm. Volunteer prisoners were subjected to the restricted diet, and developed pellagra within weeks. Dietary adjustments, including greens, pulses, and yeast extract alleviated symptoms. The "pellagra gang" were granted pardons at the end of the experiment, but the song conveyed the prisoners' feelings as hapless pawns in the white doctors' experiment.

Goldberger distributed yeast extract to hundreds of thousands of poor black people and white southerners via the Red Cross. The effect was initially dramatic, but over time people began to lapse from the regimen and pellagra re-emerged. People felt

stigmatised, having to attend the Red Cross for handouts; they were not involved in or informed about why this intervention was felt to work and be important.

Other blues songs conveyed distrust of well meaning but loathsome authority. Leadbelly sang, "I won't go to the Red Cross store." Champion Jack Dupree's "Warehouse blues," says, "Give us money and jobs, not fruit juice."

The distribution of yeast extract was eventually achieved by fortifying cornbread. Today, the vitamin in question, niacin, is a household name on the cornflakes packet. Despite this success, many senior medical figures and high-ranking politicians chose to believe that pellagra was infectious, even into the 1940s.

Edgar Sydenstricker, working with Goldberger, observed, "the inverse correlation between income and pellagra incidence was unmistakable. Family income was an important factor, since it determined the extent to which the foods containing the pellagra-preventing essential could be purchased, especially in industrial communities where the entire population was on the margin of subsistence. But income was not the only economic factor involved in pellagra. The availability of food supplies, and the various conditions determining the nature, variety and amount of food supplies were equally important factors."

There are lessons for public health practice in this story.

Firstly, sometimes the simplest, cheapest, and most effective intervention is the whole population approach---forget health campaigns, just save lives, prevent spina bifida and save teeth; bung yeast extract into cornbread, folate into bread, and fluoride in the water.

Secondly, community development is important. If you do not involve people in the decisions that affect them their reactions will be unpredictable and not rational---in your way of thinking.

Thirdly, the economic factors identified by Sydenstricker still apply today. Fruit and vegetable deficiency is the second most preventable cause of death in Europeans. Fruit is artificially priced out of the reach of the poor by the common agricultural policy---half of it destroyed to maintain high prices.

Victor Sidel, a professor of public health in New York, tells me that John Snow on cholera is celebrated more in American public health teaching than Goldberger. So the last lesson is that we should celebrate the heroes of public health more generously and internationally. Goldberger was a career public health specialist working with poor black people; John Snow was a prominent physician and Queen Victoria's anaesthetist. Perhaps it is not surprising who is the most well known.

Footnotes

If you would like to submit a personal view please send no more than 850 words to the Editor, BMJ, BMA House, Tavistock Square, London WC1H 9JR or e-mail editor@bmj.com

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