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The Pholela Health Centre — the origins of community-oriented primary health care (COPC)

An appreciation of the work of Sidney and Emily Kark

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The health centre practice pioneered by Sidney and Emily Kark and their colleagues at Pholela during the 1940s was a forerunner of and direct contributor to what later emerged as 'the primary health care approach'. This article gives a detailed account of the context, work and methodologies used at the Pholela Health Centre, emphasising the development of concepts that are now well recognised and described as community-oriented primary health care (COPC). COPC remains highly relevant to health service development in South Africa today.

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The Pholela Health Centre, located in rural Natal, was established in April 1940. To appreciate its importance even then, sociopolitical circumstances prevailing in the country have to be appreciated.

Origins

After the passing of the 1913 Natives Land Act, South Africa's black peoples, comprising some 85% of the total population, were relegated to 13% of the country's land area. This precursor of the racially exploitative apartheid system was reinforced by the Native Trust and Land Act of 1936.[1] (In documenting the historical record, I have retained use of words such as 'Native' or 'Bantu', where these appear in titles or quotations. Their use in no way implies or condones acceptance of this terminology. The affront and loss of dignity experienced by those so designated are sincerely acknowledged.) These 'homelands', largely rural and inhospitable, were distant from the major urban centres and unable to sustain a growing agricultural population or develop a solid industrial base.

From 1939 to 1948, the Smuts-Hofmeyr government pursued what, for that time, was a liberal political policy. This had a considerable influence on health policy. Dr Henry Gluckman was appointed Minister of Health in 1946, having previously served as chairperson of the 1942 National Health Services Commission, and a subsequent Health Centre Advisory Committee. The Gluckman report recommended a National Health Service available 'to all sections of the people of this country according to their needs and not according to their means'.[2] Under the leadership of Drs Gluckman and George Gale, who was appointed Chief Health Officer of the Department of Health until the accession of the segregationist National Party in 1948, plans were made to lay the basis for a comprehensive health service in South Africa that would be based on a network of country-wide health centres. The first of these, the Pholela Health Unit, was to be a model and a forerunner of the network. (Impressive as the work of the commission was, implementation of its recommendations, even in the time of the Smuts government, proceeded sluggishly[3].)

In 1938 Sidney Kark, having completed several years of graduate internships, was appointed Medical Officer in charge of the field team for a 'National Bantu Schoolchildren Nutrition Survey', planned for 1938/39 under the direction of Dr H. S. Gear, Deputy Chief Health Officer of the Department of Health of the then Union of South Africa. The final report of the survey[4] concluded: 'Diet deficiency diseases, syphilis, malaria, bilharzia, tuberculosis, scabies and impetigo, preventable crippling, and many other less severe or less common diseases, form no small array of factors which are contrary to the maintenance of good health and nutrition. No amount of juggling can succeed in separating the influence of one as opposed to the others where they so commonly occur together. The outstanding fact is that they are all preventable . . .. The problem is thus not only one of providing this or that particular food factor, but rather a need for a general increase of all foodstuffs which will tend to build up a healthy Bantu population, averting starvation as well as the many more specific deficiency diseases.'

During the course of the survey Kark was offered an appointment as Medical Officer in charge of the first of three proposed state health units in black rural 'reserves'.

Establishment of Pholela Health Centre

In April 1940 Sidney and Emily Kark, both medical doctors, founded the Pholela Health Unit. The Unit was set up by the Ministry of Health to function independently of any existing government health service. As the first centre of its kind, it enjoyed considerable freedom of operation, with little need to conform to any district or regional health authority. They were soon joined by another couple: Edward Jali, a medical aid graduate from Fort Hare, and Amelia Jali, a graduate nurse of the McCord Zulu Hospital, Durban. The task of the centre was defined as follows: 'It should combine curative and preventive services, including the following essential functions: (*i*) prevention and treatment of disease; (*ii*) health education, with particular reference to the organisation of maternal and child welfare services; (*iii*) local co-operation and community responsibility . . .. The activities of the health centre were to be co-ordinated with those of other local agencies such as the authorities responsible for agriculture and education.[5]

Several months later the Department of Health sent four experienced male malaria assistants from other parts of Natal to be retrained as members of the health centre staff. (Pholela, however, is not a malaria area.)

Training of the health assistants focused on basic subject-matter and supervised field experience. Subjects included:

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(*i*) elements of physiology; (*ii*) diseases, especially infectious diseases; (*iii*) nutrition and nutritional disorders; (*iv*) family health, including maternal and child health; (*v*) personal hygiene and health promotion. The importance of understanding local concepts of health and disease was stressed, along with methods of health education.

Field experience emphasised: (*i*) practical nutrition, including demonstration vegetable gardens and the introduction of school meals; (*ii*) demography in health, i.e. a home health census, and community health education at homes, in schools, and at village meetings; and (*iii*) encouragement of self-help by families and community groups.

Initial activities of the centre included: (*i*) meetings with community leaders such as chiefs, elders and teachers to explain the purpose of the proposed work; (*ii*) establishment of a general clinic, open to all, in a disused farm building; (*iii*) control of infectious disease outbreaks notified by the magistrate or district surgeon. These included smallpox, typhoid and typhus fevers, and family diseases such as tuberculosis and leprosy; (*iv*) health and nutrition surveys of schoolchildren in consultation with their teachers; (*v*) immunisation programmes; (*vi*) a maternal and child health programme; (*vii*) development of sub-centres in the Pholela district; and (*viii*) community surveys of health-relevant activities with detailed feedback to the health team.

Initial obstacles

Albeit inadvertently, suspicion and resentment were provoked among chiefs, indunas (headmen) and the local people. They objected to not being counselled about the government's purchase of land for a clinic, to the appointment of outsiders rather than local people as community workers, and to the health assistants' approach of visiting homes 'like spies', rather than allowing people the choice to use the clinic when they pleased.

Recruiting of local staff

In response, the health centre staff was soon modified by the appointment of people from the local community. Among these were female as well as male community health workers (CHWs), an admissions clerk and health recorder, and several nurse-aides. Furthermore, representatives of teachers, women's groups and community elders, both church and secular, met frequently with staff of the health centre.

A key appointment was that of Mrs Margaret Shembe ('Ma Nzimande'), previously headmistress of the local school, who came from a prominent family and kinship group in the area. She pioneered a system of 'preschool child centres' staffed by women volunteers. The centres were play groups but also served as nutrition education and feeding centres. Here, produce from local vegetable gardens was distributed, and greatly facilitated an effort to address malnutrition among children under 5 years of age.

Health centre practice — introducing a methodology

The first group of five CHWs were allocated work areas, with each responsible for some 4 000 - 5 000 people. Their main duties were communicable disease control and community health education. Weekly health unit staff meetings, drawing together clinical and community activities, were held with the CHWs to review their work. From these, clinic-based staff realised that they knew very little about the family life and social circumstances of their patients. A clear need to identify the home circumstances of community members emerged. Family files, combining patients' clinic records with the home-based field records of the health assistants, were compiled.

After about a year, two key innovations were introduced at Pholela: firstly, an *initial defined area* (IDA) of some 130 households (900 individuals) was designated for intensive study and service. Each CHW (aside from their wider area of responsibility) was allocated 25 - 30 homes in the IDA. Addresses were given to each home after careful mapping of its position and relation to available water supplies. Secondly, a household health census, administered by the CHWs, was undertaken. This was updated using routine health centre records of births, deaths, and migrations in the IDA.

After 1 year, a review of findings clearly demonstrated improved health status in the IDA. Thereafter, the IDA was extended annually until it eventually covered about one-third of the total population of 30 000. This process of annual extensions allowed regular assessment of changes in health status via comparison of the intensively serviced area with that most recently incorporated. Appropriately indexed cards — family health records — were designed so as to correlate readily clinical findings with field data from home visits, school health services, etc.

The intensive activities developed with the families and community of the IDA led to an approach formulated along the following lines: (*i*) to co-ordinate care of individuals with interventions directed toward changing health-related behaviour of families and the community; (*ii*) to carry out social, behavioural and epidemiological investigations (community diagnosis) as the foundation for intervention programmes; and (*iii*) to organise an ongoing system of evaluation of the various programmes, by measurement of changes in community behaviour and health status.[6]

Achievement of this required a record system readily able to provide information on the community's health, the determinants thereof, and activities of the health centre. The health information system included the following:

1. Demographic information providing basic denominator and numerator data on: (*i*) population, according to age, sex, education, occupation, marital status, kinship networks; (*ii*) pregnancies, live- and stillbirths; (*iii*) deaths; and (*iv*) migrations in and out.

2. Determinants of health. Such information was largely accumulated through special surveys addressing: (*i*) social structure, especially kinship and family responsibilities in health care; (*ii*) work and social activities, including seasonal variations; (*iii*) seasonal dietary surveys of special groups such as infants, schoolchildren, and pregnant women; food production surveys including crop yields, seasonal milk and home garden production, and ownership of livestock and poultry; (*iv*) housing and the environment, including a detailed survey of each homestead, purity of water sources and potential for protection and disposal of refuse and excreta; (*v*) utilisation of health care services, and the extent to which this is affected by traditional concepts of health and disease.

3. Health and morbidity data, acquired largely from the team's clinical and survey records. Acute diseases were noted on special forms; this permitted surveillance of infectious disease and acute nutritional failure. Clinical and field records were periodically summarised for each family and abstracted for analyses of morbidity and mortality indices, immunisation rates, and growth and nutrition status. This was all related to assessments of health-related behaviour and the environment of families and the community as a whole.[6]

The extent of integration between the clinical and community aspects of the Pholela practice is striking. Absence of the traditional separation between curative and preventive/promotive services ensured that this occurred because the unifying objective was *community* health status, and not individual status alone.

The longitudinal picture that resulted from careful analysis of these data was among the outstanding features of COPC. A weekly team conference (or 'epidemiology-in-practice' session) for exchange of this information among team members was attended by the whole health centre staff. These were intense and rewarding discussions, and participants recognised the need to preserve confidentiality.

Outstanding features of the community diagnoses were: (*i*) high rates of mortality, especially in infancy, due to acute upper and lower respiratory tract infections and gastro-enteritis; (*ii*) high rates of malnutrition, especially pellagra and kwashiorkor; (*iii*) high incidence of infectious diseases, e.g. tuberculosis and sexually transmitted diseases, especially syphilis; (*iv*) endemic skin diseases, especially scabies and impetigo; (*v*) frequent epidemics of smallpox, typhoid and typhus fevers, measles, whooping cough and epidemic conjunctivitis, with serious complications due to malnutrition; and (*vi*) depression and hysteria, together with various syndromes of bewitchment and 'possession'.

The approach in practice — some illustrative examples

The following examples are drawn from data routinely collected in Pholela Health Centre practice. Regular compilation and interpretation were regarded as necessary for clinical practice and the basis for community health measures. (While control communities were not routinely employed, the impact of demographic and social change was, as far as possible, taken into account.) More generally, the examples underline the value of regular generation of such information to set local public health priorities and monitor the effect of programmes. Also apparent is the lengthy time period before changes in community health status can be measured, and the need for continuity and stability in the health team's relationship with the community.[7]

Infant mortality rate (IMR)

The introduction of a demographic surveillance system, including birth and death events, made calculation of IMRs possible. (No routine recording of vital events in Pholela, or any other rural area, took place at that time.) Analysis of the period 1942 - 1956 showed a decline in the overall IMR from 256/1 000 for the first 2-year period to 86/1 000 in the last.

To evaluate the health centre's impact satisfactorily, IMRs in 'new' areas — i.e. the first year that families were incorporated into the IDA of the practice — were compared with rates in the 'old' areas, containing families who had lived in the IDA for at least 1 year. Over a 10-year period, 1942 - 1951, a highly significant reduction in IMR was evident. The average IMR in the 'new' areas was 25,3% (N = 252 live births) compared with 11,2% in the old areas (N = 729 live births).[8-10]

Changing nutritional status

Examples of this are: weight gain and growth in well infants, incidence of kwashiorkor and weight change in pregnancy.

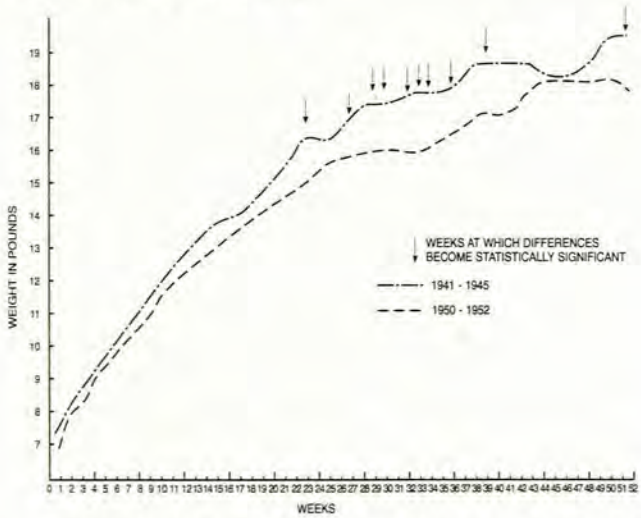
Weight gain in well infants

For many years the centre conducted a vigorous nutrition programme focused on mothers and their infants. In addition to education about breast-feeding practices, this included the post-weaning diet and promotion of household and communal vegetable gardens.

To assess the programme's effect, detailed criteria to characterise a 'well baby' were established.[11] A proportion of the infants cared for during two time periods, 1941 - 1945 and 1950 - 1952, were selected.

The change in the weight curve (Fig. 1) shows a marked improvement over the decade under consideration. The difference between the earlier and later weight curves is significant at 5 months, and the positive difference in the later cohort is increasingly evident thereafter. According to Kark, 'The (dietary) changes advocated by the health team . . . together with more effective treatment of illness and its primary prevention, is in our view the main reason for these changes. In particular, improved weight gain was associated with a marked decline in the infant mortality rate.'[10]

The programme was also effective in markedly lowering the incidence of kwashiorkor.



Records of infant weights: 1941 - 1945 personal communication — Prof. S. L.Kark. 1950 - 1952 personal communication — Dr A. Oberlin-Harris. Note that the original research was done in pounds.

Fig. 1. Mean weekly weights of healthy Pholela infants 0 - 1 year, 1941 - 45 and 1950 - 52 — comparison of periods (smoothed curves using centred two-point moving averages).[13]

Weight change in pregnancy

Antenatal records were analysed to assess women's weight change in pregnancy (Table I).[11,12] The sample was small (N = 116), as most women presented for antenatal care at an advanced stage of pregnancy; moreover, the figures for duration of pregnancy should simply be regarded as fair estimates.

Table I. Changes in weight of expectant mothers at different stages of pregnancy[12]

Period of pregnancy (months)	No.	Mean increase in weight (lb.)
0 - 4	31	0,07
5th	53	2,08
6th	45	2,05
7th	54	1,80
8th	58	1,04
9th	68	2,02
last	59	0,48

Overall weight gain was exceptionally low. During the first 4 months, 11/31 women (35,5%) gained more than 650 g (1 pound); 13 lost more than 650 g. During their last month, only 31/59 women (52,5%) gained more than 650 g. In the intervening 5th to 9th months a higher proportion gained weight although, month by month, 23 - 45% of women failed to gain more than 650 g.

This series underlines the general state of malnutrition in Pholela and, by extension, the community's depressed level of health.

Infectious diseases

Health centre records demonstrate a marked decrease in the incidence of infectious disease over the 20 years that the centre was active. Common among these were syphilis and other sexually transmitted diseases, immunisable diseases (smallpox, pertussis, diphtheria, tetanus and typhoid fever), scabies and impetigo.

The health centre was less successful in its efforts against tuberculosis, recognised as a major cause of death in adults and children. While malnutrition, together with beliefs about the nature of disease, was partly responsible, the most significant factor is the system of migrant labour. Tuberculotic men, too sick to maintain their employment, returned to rest or die in their area of origin, and in the process perpetuated the problem.

Syphilis

The relationship between syphilis and migrant labour was well appreciated by the community, and this association was further complicated by persisting beliefs in witchcraft. Nevertheless, through an intensive and sustained programme of community education and case-finding, coupled with support from community leaders, major progress was made against a highly prevalent problem.[13]

Table II shows a marked decrease in the incidence of syphilis between 1943 and 1957, and Table III complements this by showing the declining stillbirth rate among syphilitic mothers. As with tuberculosis, however, the 'perpetual introduction of sexually transmitted disease by migrant labourers [into immunologically vulnerable communities] militates against [its] radication'.[13,14]

Table II. Incidence of new cases of syphilis in the Pholela defined area[13]

Year	No. of new cases	Mid-year population	Incidence per 1000 population
1943	12	887	13,52
1945	347	5 184	6,69
1947	287	6 524	4,40
1949	228	6 622	3,44
1951	128	8 549	1,50
1957	83	10 496	0,79

Table III. Stillbirths expressed as a proportion of total births to syphilitic mothers[13]

Year	Total births to syphilitic mothers	Stillbirths	
		No.	%
1949	60	9	15,0
1950	68	7	10,3
1951	77	4	5,2
1952	66	5	7,5
1953	54	1	1,9

It should be emphasised that for much of this period, penicillin and other antibiotics were not yet widely available, while oral rehydration therapy and measles immunisation had not yet been discovered. The outstanding feature was the outreach programme, supported by CHWs, and the sub-clinics conducted by nurses and midwives of the health centre. Field health education was closely integrated with the services provided at the health centre itself.

The explanation for these major health improvements thus does not appear to be the technical aspects of diagnosis and treatment or accessibility to the health centre's clinics, but rather the relationship between the health centre team and the community, i.e. the intensive and informal health education programme which took CHWs into the homes and neighbourhoods of the IDA. The emphasis of the service was thus effectively modified from what is usually done for patients, to what the family or community does for itself, encouraged and enabled by the health centre team.[10]

Extending the COPC approach

The Institute of Family and Community Health (IFCH)

The experience of Pholela, and the contributions of the many health practitioners who worked there, set a superb example of health centre practice, one that combined primary medical care with community outreach, both based on a foundation of community epidemiology. This approach, later termed community-oriented primary health care (COPC), was regarded by senior administrators of the National Department of Health as the model to be followed in the future development of South African health services. As already noted, the Health Centre Advisory Committee, following the government's acceptance of the National Health Service Commission's recommendations on development of health centres, decided to establish the Institute of Family and Community Health (IFCH) in Durban

in 1945. Core objectives of the institute were: (*i*) to train nurses, doctors, CHWs, health recorders and laboratory workers to staff the future health centres of the proposed National Health Service; (*ii*) to provide opportunities to research health conditions in a range of geographic and ethnic communities; (*iii*) to research appropriate health delivery systems suited to the circumstances of different communities.

Eight health centres were attached to the institute, with Pholela as the rural practice site (Table IV).[13,15,16] In addition, several divisions were contained in the institute, and courses in a range of disciplines were given. The divisions included: (*i*) family and community health, including mother and child health; (*ii*) health administration; (*iii*) nutrition; (*iv*) control of communicable diseases; (*v*) community organisation and health education; (*vi*) community nursing (which combined curative and preventive nursing); (*vii*) clinical pathology; (*viii*) health statistics and recording; and (*ix*) environmental sanitation.

Table IV. Health Centres attached to the Institute of Family and Community Health

Woodlands	(working class white community)
Springfield	(Indian housing project)
Marshlands	(Indian slum community)
Clairwood	(Coloured community)
Lamontville	(African housing project)
Newlands	(African and Indian peri-urban community)
Douglas Lapping	(New industrial area, Clairwood — Mobeni)
Pholela	(African rural community)

All the above, except the Pholela Health Centre, were situated in the Durban area.

In 1954 the IFCH was affiliated with the Natal University Medical School, and members of its staff constituted a newly established Department of Social, Preventive and Family Medicine. Medical students in their 4th - 6th years were required to do clinical clerkships in the IFCH centres, along with systematic courses in family and community health, epidemiology and health education.

Conclusion — some key concepts

Despite determined opposition from the National Party, and the gradual demise of the health centre movement in South Africa, the basis for a new approach to primary health care, in the form of COPC, had been laid, first at Pholela, and then in the network of neighbourhood health centres in Durban.

Over the period 1948 - 1960, the activities of the IFCH and its associated Department of Social, Preventive and Family Medicine at Natal University Medical School were slowly attenuated and finally dissolved. Many of the senior staff left South Africa. The remaining staff members were transferred to existing curative services in local hospitals and clinics. Decline of the national health service vision meant that rural health services in South Africa remained underdeveloped and continued essentially as missionary-initiated hospital-based services.

The COPC approach has since been adapted and developed by practitioners elsewhere, especially in Israel, the USA and Canada, several countries in Africa, Asia and Latin America, and more recently in Spain and the UK. There are also encouraging possibilities of its reintroduction into South Africa. Through the 1960s and 1970s, as the strengths of COPC were recognised, it contributed significantly to the international body of experience that was formalised in 1978 in the Alma-Ata Declaration on Primary Health Care.[17]

Certain key concepts, arising from Pholela and refined by later experience, have emerged as central to COPC practice. These are briefly noted below:

1. The link between diagnosis and treatment of individual patients and an approach that views the community as 'patient'[18] (Table V). Through this, clinical diagnosis and the use of epidemiological methods for community diagnosis have come to complement one another, as have consultation, treatment and follow-up of the individual, and programmes of health intervention and evaluation (including preventive measures) in the community.

Table V. Summary of complementary functions of clinical and epidemiological skills in development of community-oriented primary health care[18]

Clinical (individual)	Epidemiological (population)
Examination of a patient Interview and examination of individuals by history taking, physical and psychological examinations, laboratory tests, radiography and other special techniques	Survey State of health of community and families, using questionnaires, physical and psychological testing, and special facilities for such investigations.
Diagnosis 1. Usually of a patient. Differential diagnosis to determine main causes of patient's complaint. 2. Appraisal of health status of a 'well' person, such as a pregnant woman, well children, periodic health examinations of adults.	Community diagnosis 1. Usually problem-oriented. Differential distribution of a particular condition in the community and the causes of this distribution. 2. Health status of the community as a whole or of defined segments of it, e.g. health of expectant mothers, growth and development of children, birth and death rates.
Treatment 1. According to diagnosis and depending on resources of patient and medical institutions. 2. Intervention usually follows on the patient seeking care for illness or advice about health.	Treatment 1. According to the community diagnosis and depending on resources of the health service system. 2. Intervention on basis of survey findings often before any illness notified or recognised.
Continuing observation Evaluation of patient's progress and sometimes for further diagnostic work-up.	Continuing surveillance Surveillance of health state of community and ensuring continuing action. Evaluation of intervention programmes.

2. The recognition that several conditions may be interrelated and geographically clustered among the practice community led to the concept of a 'community syndrome'. This describes a complex of interactions between determinants of ill-health leading, in the case of Pholela, to a syndrome of 'malnutrition, communicable diseases and mental ill-health in a poor rural community undergoing rapid change'.[11]

3. The development of COPC is a cyclical process, similar to the better-known planning cycle, in which 'activities are continuously influenced by a feedback of epidemiological and other information'[19] (Fig. 2). Abramson,[19] a leading proponent of the COPC approach, notes that the process is analogous to the physician's approach to an individual patient and could constitute an extension to the aggregate level of what nurses term the 'nursing process'.

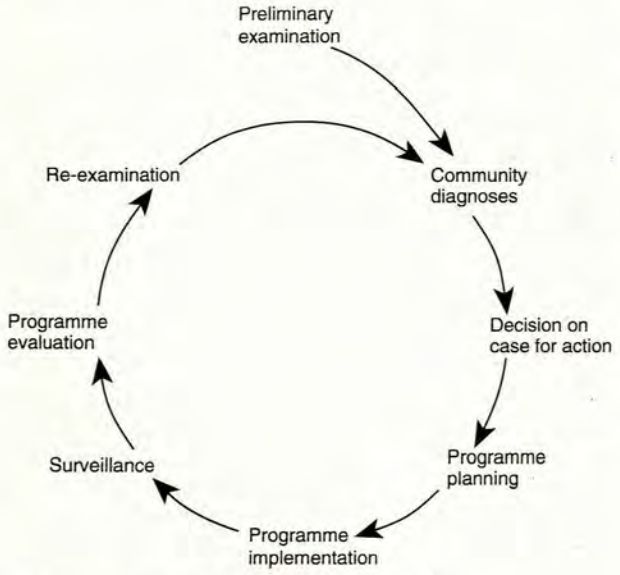


Fig. 2. Stages of community-oriented primary care.[19]

4. The COPC framework is widely adaptable. Suitably modified, COPC has been introduced, with encouraging results, to communities of widely differing social, cultural and economic status.

This work would not have been possible without the abiding interest of Sidney and Emily Kark, and their willingness to talk, teach, explain and listen.

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A list of further reading is available from the author.

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