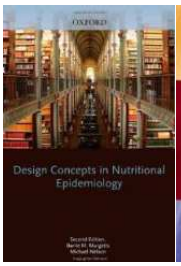
WN *Inspiration*

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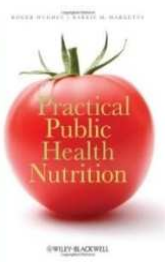
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Barrie Margetts on David Barker

A great scientist, a lovely man

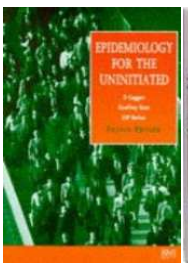


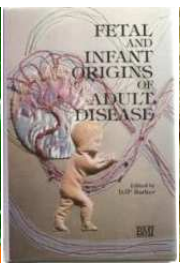


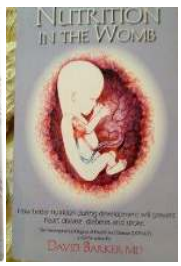


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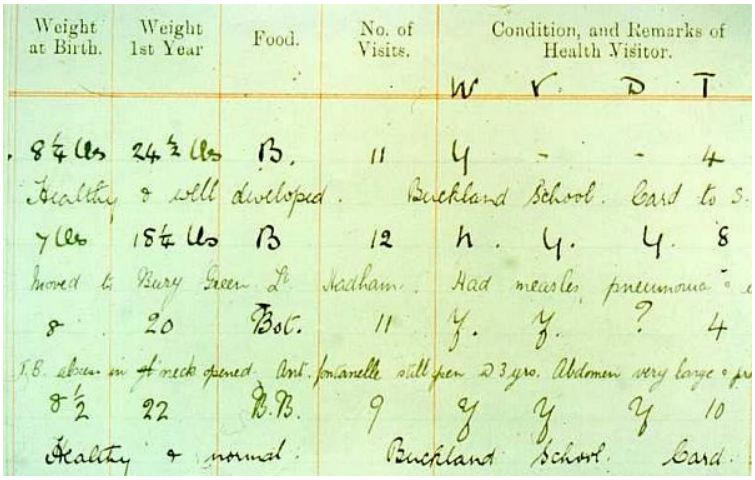
Barrie Margetts (top pictures, left and right) was born and brought up in Australia, and his career began there. He came to the UK in the early 1980s, and soon afterwards he began to work at the University of Southampton, where he is now professor of public health nutrition. He has a special interest in the design of dietary surveys, and in the theory and practice of public health nutrition (see book covers above). He was the founder editor-in-chief of the journal *Public Health Nutrition*, serving in this position for three terms of three years, and has been the founder-president of the Association since 2006.

David Barker (above, left) died in August. A physician and a distinguished epidemiologist (see first two book covers above), he is best known for the 'Barker Hypothesis' (next two books above) which is a basis for the Developmental Origins of Health and Disease (DOHaD) organisation and journal. DOHaD states that the seeds of adult health and disease are sown in the womb, and that priority in prevention of disease should be given not so much to adults as to mothers and children, beginning in the pre-conceptual period. David Barker's work and DOHaD were identified as 'the new science' by *Time* magazine in 2010 (above)

My inspiration is a man and his life and work: David Barker, and his theory which is now a movement and an institution, as the Developmental Origins of Health and Disease, or DOHaD. David died in August. He was my mentor for almost all my professional life in the UK, and I was privileged to play a small part in the formation of his grand theory. David also inspired me personally, and he will continue to do so.

I first met David in 1984, when I was invited to give a presentation at a seminar at the Medical Research Council unit at Southampton University which he had inaugurated in that year. In August 1985 he asked me if I would like to come and work with him. I accepted and arrived in late December. I did not have to have an interview or even submit a summary of my work, and I am not even sure if the job was advertised. David was like that. I remember him saying at some later stage, if I overspend the budget, what are they going to do to me?

The Hertford trove



Weight at Birth.	Weight 1st Year	Food.	No. of Visits.	Condition, and Remarks of Health Visitor. W	V	D	T
8¼ lbs	24½ lbs	B.	11	4	-	-	4
Healthy & well developed. Buckland School. Card to S.							
7 lbs	18¼ lbs	B	12	h.	4.	4.	8
moved to Bury Green Lt Hadham. Had measles, pneumonia							
8	20	Bot.	11	Y.	Y.	?	4
T.B. about in 4th neck opened. Ant. fontanelle still open 2 3 yrs. Abdomen very large							
8½	22	B.B.	9	Y	Y	Y	10
Healthy & normal. Buckland School. Card.							

Here above is an example of what I found in the Hertford County Archive in 1986: meticulous records of weights at birth and year 1, dating back to 1910

In 1986 David recruited more staff and asked some of us to scour the country for birth records. He had just published *his first paper* showing close links between infant mortality in the 1920s and subsequent deaths from heart disease half a century later in the same county (1). This was new.

But this important study was based on whole populations, and associations were not possible at the individual level. As a leading epidemiologist David was well aware that such associations could not be adequate evidence for a causal link between intrauterine events and subsequent risk of heart disease. In the UK parish and other local county records may be held for hundreds of years. David wanted to get hold of comparable data on a lot of individuals so we could follow them up through the National Health Service (NHS) central register to see if the association really was there. For several weeks we drove around the country. We focused on Hertfordshire,

searching county archives, churches, charities and any other places that might hold records. One Friday afternoon, on my last call, I visited the Hertford County Archive. We had been there before and spoken with the county archivist and had been told that they had no relevant records. When I called again that Friday I spoke to an assistant, and after a few moments she said to me quietly 'the archivist told me to throw some records out, but I decided not to, and put them in the cellar', and she asked if I wanted to see them. I did indeed! In the cellar were rows of large ledgers. These were health visitor books, which seemed to run from around 1910 when the health visitor services were started up in Britain, to about 1930. On each page were the names of children, their birth-weight and weight at 1 year, and other information about breastfeeding and illnesses and other events, all handwritten.

The 1989 Lancet paper

I told her these were very interesting and wondered if we might be allowed to take them away? She thought this would be fine, since nobody else knew they were still there. On Saturday morning I went into David's office and told him that I thought we had found some records that might be useful. He had also found records from a number of studies undertaken in the 1930s, but none like those from Hertford. The next Friday David and I drove up to the County Archive and loaded the records into the unit car. We were a bit worried we had overloaded the car as it was rather low at the back, but there was no way we were going to leave any of these ledgers behind.

We stopped at a pub on the way, but after a few minutes we both thought better of this, and got back to the car and to Southampton, where David had arranged with the University library to take possession of the records. He had secured a room at the library where we could access the records, and within a few weeks he had organised two members of staff to start double-entering the records onto computer. He had also arranged that we would check the NHS central register in Southport to see if we could trace any deaths among the list of names we had. We began sending batches of records to the NHS central register. The registrar sent us back copies of the death certificates that we then checked and coded for cause of death. After about two years of entering names, we had followed up a total of about 5000 men. The unit's statistician Clive Osmond then began the analysis with David that resulted in the *Lancet paper of 1989* of which I was proud to be a co-author (2).

This is the most cited of all David's papers – 1891 citations, when I last counted. It showed that low birthweight predicted earlier subsequent death from ischaemic heart disease. This was the first cohort study ever to show this relationship. Many things followed from this pioneering study and the subsequent analyses of those that had been traced and were still alive, as well as those that had died. Studies continue until today (3-17). *An account* of David's work, applied also to low-income countries, was made by the science editor of the *Toledo Blade* in 2002 (18).*The Guardian published a substantial obituary* on 11 September (19).

Box 1

DOHaD in *World Nutrition*



In April 2011 WN carried a statement from the Developmental Origins of Heath and Disease (DOHaD) organisation, designed to influence the UN high-level meeting on prevention and control of chronic non-communicable disease, held later that year (20). Access the full referenced document here. This said in part:

Individuals who had a lower birth weight (an indicator of sub-optimal fetal growth and/or nutrition) have an increased risk of adult coronary heart disease, stroke, hypertension, type 2 diabetes, chronic obstructive lung disease, osteoporosis and mental ill health. Men and women who weighed less than 2.5 kilograms at birth have approximately twice the risk of dying prematurely from coronary heart disease, or of developing type 2 diabetes, compared to those who weighed 3.5-4.0 kilograms...The risk is increased further if there is mismatch between the fetal and adult environments, for example if the individual is exposed to adult obesity, inadequate exercise, unhealthy diets, smoking and psychosocial stress.

The main underlying causes of fetal under-nutrition worldwide include poor maternal nutrition during the growing years, inadequate diet before and during pregnancy, and poor function of the fetal supply line (for example, the placenta). Maternal under-nutrition remains a major problem in low- and middle-income countries. Inadequate and poor quality diets are more common among women of low income and educational attainment, and among women who are food insecure.

While current evidence of fetal influences on later health is based substantially on maternal diet and nutrition and on birth weight, there is growing evidence of the importance of other maternal and fetal exposures. For example, there is evidence linking maternal smoking during pregnancy or maternal exposure to environmental pollutants such as endocrine disruptors with an increased risk of obesity in the next generation. In animals, maternal stress or glucocorticoid exposure is associated with increased adiposity, blood pressure and glucose intolerance in the offspring; psychosocial stress in the mother during pregnancy as a risk factor for non-communicable diseases in humans has been little studied.

Maternal obesity, another form of maternal malnutrition, also adversely affects fetal development, leading to increased adiposity of the fetus and newborn baby, and a risk of early-onset obesity and diabetes in the next generation. This is exacerbated if maternal obesity is complicated by gestational diabetes. In developed societies many women consume poor quality and unbalanced diets, which result in nutritional deficiencies on the one hand and overweight and obesity on the other. Maternal obesity is also an increasing problem among urban populations worldwide, even in developing countries. This will contribute to an increasing burden of diabetes in the future.

David as mentor

Looking back, that was a fine time, and David flourished in it. He was a free spirit, a creative lateral thinker, a can-do person, and in those days for people like him it was easy just to get on with things. There were no Review Committees or Governance Forms, and David sorted the money somehow (I was too junior to know or ask!), and got on and achieved. As the director of a Medical Research Council unit, David had the resources and freedom as well as the passion and energy, to get things done.

Other reflections about those years included being asked to join the Friday evening at 6.00 drinks in the postgraduate education centre (now closed, no drinking allowed), and enjoying the wit and wisdom of the discussions and repartee. The last time I spoke with David this last May, he was still taking the rise out of me, to my pleasure.

I was born and brought up in Australia and did my early work there. At one time I had organised a review of dietary survey methods for use in epidemiological studies, and subsequently organised a meeting in Sydney to see if we could reach agreement about what methods were suitable for different types of study. Shortly after I started in Southampton, David agreed to help me. He invited senior people to a meeting at the Royal Society of Medicine in London to carry on the work, to discuss methods of measuring diets, and to develop a group dedicated to strengthen this work, in what we now call nutritional epidemiology.

I don't know how he funded this. He just did, and he supported me to get on with it. From that meeting and the group that was formed, developed a summer course in nutritional epidemiology in Southampton, then courses in many countries, then perhaps the first systematic review of diet and its relationship with cancer funded by the UK government Department of Health, coordinated by what has become our Nutritional Epidemiology Group, in turn followed by a textbook, and subsequently a Master's degree in public health nutrition. Without David's support and enthusiasm none of this would have happened.

This work of mine and my colleagues and networks was not his own special interest, but he gave me space, time and resources to get on with it. I think he liked people that got on and did things. If you had the energy and were prepared to have a go he would support you. In 1989 I obtained a grant to focus on this work and stopped working formally for David at the MRC. He mentored me ever since, and was always available to help and guide. I was one of many people he supported in this way.

One of my fondest memories was in my first years at Southampton. It was the summer of 1986, or perhaps 1987. David and his family had not long before moved into their farmhouse in East Meon, and he and his wife Jan invited the unit staff over for a summer party. It was a perfect English summer's day. My children enjoyed adventures in the barn, playing tug-of-war across the stream, and feeling safe and

happy in a wonderful warm environment. Many years later David and Jan and his daughter Mary organised a lunch for a group of us to celebrate the launch of a food choice action group led by Mary, and we again enjoyed the warmth and love of the home that David shared in creating. He was so proud of his family and so supportive, and he was such a lot of fun.

One of the privileges of being a researcher working on international projects, is travelling to amazing places. On such occasions I have spent time with David over dinner and drinks. One occasion in Mumbai in 2011 comes to mind. There were about eight of us round the table, and David had us rolling about in tears laughing so much. He had a wonderful memory for stories and could tell them so well.

We were there for a committee meeting for the maternal nutrition project led by our colleague Caroline Fall from Southampton University. David was followed around by a BBC crew for a *Horizon* programme *(http://www.bbc.co.uk/programmes/p00jxt10)* they were making on his work. In early September – last week as I write – we submitted the study and its findings for publication. David is of course a co-author. This study is the first to show that improving the diet of young women before they become pregnant may be at least twice as effective as supplementation started during pregnancy, which is the current practice.

He worked hard to the day he died. He seemed to have found the right balance in his life and he knew what was important. At his home four generations lived together in the space he and Jan created and nurtured. Like many others I always felt lucky to be in his company, and cherished these times, knowing what a privilege they were. Few people are like that. He really did live life to the full and I believe he knew he could die, as he now has aged 75, knowing that he has changed the world for the better.

Few people have such an impact that David will continue to have on the way we think, and on the lives of so many people. Without him I would not have chosen the path I have. He will always have a special place in my heart.

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Editor's note

Inspiration is edited by Seva Khambadkone. Contributors are invited to choose and write about the document that has most impressed and moved them in their life and work. The choice can be from this year, or ten or a hundred or thousands of years ago. It need not be explicitly about nutrition or public health, but it should be offered as inspiration to *WN* readers in their own thinking vision and work. The document should be available in pdf form. Please send suggestions for this page to wn.network@gmail.com.