

## How environment influences behaviour

Breakfast seminar, given by Dr Denise Stevens, 9 June 2011

This is the seventh in the series of International Breakfast Seminars held by C3 Collaborating for Health ([www.c3health.org](http://www.c3health.org)).

Please note that the slides from this seminar are available on the C3 website.

### Introduction from Christine Hancock, C3 Collaborating for Health

Christine introduced C3 Collaborating for Health, which is a global charity that brings together diverse stakeholders (of which today's seminar is a good example), to address the challenge of chronic disease. She also talked briefly about The House of St Barnabas, one of London's hidden treasures, and the venue for the seminar. The idea behind the seminar series is to provide a London audience with information about work being done overseas.

Dr Stevens is president of MATRIX Public Health Solutions, a think-and-do organisation that gives technical assistance to government, NGOs etc., and a lecturer at Yale University School of Medicine, School of Public Health. She leads the Community Interventions for Health (CIH: [www.cih.net](http://www.cih.net)) programme, which began at Yale and is now supported by Oxford University.



### CIH: an exemplar for examining how environment influences behaviour

Denise began by outlining her talk: a brief overview of non-communicable diseases (NCDs) and the CIH project (particularly focusing on the environmental scan methodology, which gives researchers a good idea of the community context in which they are working), and then a series of snapshots reflecting the interventions that the different sites are doing.

NCDs account for 60% of all deaths worldwide, of which 80% are in developing countries. The CIH project is an answer to the question: what can you do to prevent NCDs – the initiative focuses on the three major risk factors (poor diet, smoking, physical activity).

CIH is currently one of the largest community-based studies in the world that is tackling NCDs. It aims to develop and showcase (through evaluation) that there are sustainable interventions that can work. It is facilitated and coordinated by MATRIX Public Health Solutions.

In 2006, when CIH was being planned, funding was almost non-existent for NCDs. It is a pilot study made up of sites in real communities: Mexico, South India and China.

Need to take a comprehensive approach, as shown on the slide overleaf.

- Inputs for change: the knowledge, attitudes and behaviour around the risk factors.
- Strategies for change: comprehensive; community mobilisation is really important; social marketing is probably less of a focus in this project.

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- Locus of change – from individual to societal level.
- Assessment of change – surveys, environmental scans, and policy reviews within the context of each country

There are both implementation and comparison sites in each country. Interventions have been in place for 18 months, and final data collection is now occurring.

The baseline data results (not the focus of this presentation) were not surprising. As was expected, there are high rates of obesity and other risk factors.

The project takes place in neighbourhoods, schools, workplaces and health care settings, and sample sizes are large. It addresses biometric measures, behaviour change, policy changes and the environment.

NCDs are complex – and doing something about them is a real challenge: CIH was designed in a way to tackle NCDs at a systems level.

Working with people on the ground is essential: even during the baseline data collection, the researchers had to go out into the community to make links to schools and workplaces to make contact with the right people at the neighbourhood level etc., working across multiple sectors.

As the evaluator of the project, Denise felt that the China programme has been particularly successful in managing to make all the required connections.

The **environmental scan** was devised using a methodology that draws a 400m radius around a school, and then assesses the options for exercise and play, eating, media, shopping, etc., within that area. This approach takes something complex and brings it down to a more practical, manageable level.

The researchers walked around the area around the school, capturing stores, restaurants, food vendors, and opportunities for physical activity, which was both very comprehensive and time-consuming. There were up to 20 schools in each site. A slide showing a map of where fresh fruit and vegetables were found to be available within a 400m radius of a school makes the accessibility of healthy food choices very clear.

Another example of what was done was a mapping of what children said about accessibility of fruit and vegetables, compared to the actual availability. The next question is then how to increase availability (e.g. mobile cart vendors could gravitate to those areas).

Availability of tobacco in shops was also assessed: there were many more places to buy tobacco than fruit and vegetables, giving another opportunity for intervention.

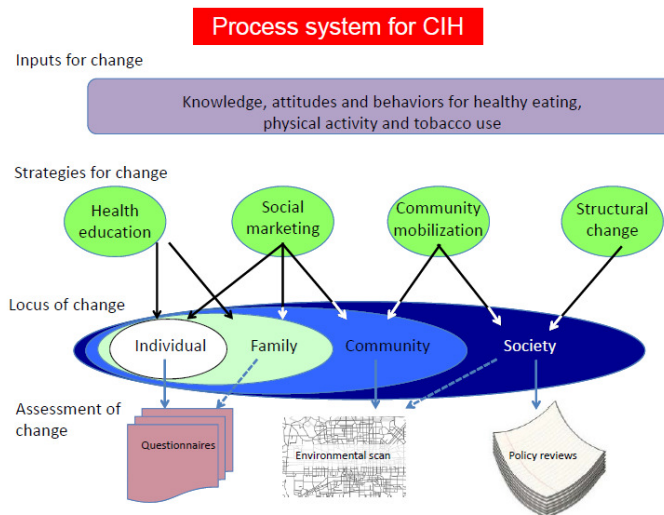
## Country sites

There are very interesting things going on in each of the different country sites, although at the start each site was provided with the same kinds of information – a series of evidence-based practices that they could start with, knowing that they would need to adapt the intervention to their particular setting. For example, how can you get women in India (who wear saris) to take exercise? This is very difficult – so different sites emphasised different aspects of NCD prevention.

## China

The China site has a strong advocate for CIH, who has formerly headed up the CDC in China. The group was able to work with the Primary Health Care (PHC) system and implement through the PHC providers.

The PHCs were not as strong as the tertiary centres – and many people were receiving primary care from the tertiary centres. CIH was a great opportunity for the PHC centres to get more involved – for example through community-level screening etc.



Team of 80 people from the PHCs went out and undertook the screenings, which reached 2 million people; PHCs were also trained in tobacco cessation, and the site designed relevant training tools etc.

In all the sites, a big piece that was missing was health education: in China, there were literally no information posters on anything other than food safety, so the CIH team designed tobacco-control posters, for example.

The broader, city-wide result has been ‘Healthy Hangzhou’ – it is only the second city in China to be smoke-free (i.e. smoking is banned in workplaces etc.):

- The tobacco-control police in Hangzhou go into workplaces, and there are 100 community volunteers who ticket people for smoking in public!

There is also physical activity equipment installed along the canal, and much has been added in terms of walking paths, a bike-hire system (with 10,000 vehicles available), etc.

## **Mexico**

In Mexico, unlike in China, the focus was much more at the level of the community, involving them from the start. It was particularly challenging to get into schools, which was a new venture for the CIH team.

A major partnership has been with the national sports authority:

- 400 physical activity promoters were trained about the other risk factors, and Zumba classes are being held in communities. Local community residents are then trained, and continue the project.
- There are now several hundred people every week holding physical activity classes.

The CIH project in Mexico has also addressed the physical environment

- For example, it leveraged funding for outdoor gyms etc.

Health education was also important. There is often an assumption, in developed countries, that people have good enough basic knowledge about the risk factors – but it is different in the developing world. Health education is always important to include in the projects.

Mexico demonstrated the need to understand cultural context – there are many, many food vendors, for example, which needs to be taken into account, and zumba and dance is really important culturally, too, so was encouraged as part of the physical activity interventions.

## **India**

The India CIH team in Kerala developed a partnership with the department of social welfare, and ‘anganwadi’ workers (women who work in maternal health in poor communities) were trained in the risk factors. They then visit local families and discuss all the issues. This is a very cost-effective strategy, and reaches 200,000 households.

One important aspect of the work is around shifting the cultural norms of young girls, with a particular focus on cycling: boys cycle but girls don’t, so girls have been encouraged to do so through classes etc.

The site also focused on women’s physical activity – classes in yoga (which was a form of activity in which women were happy to take part) have been stepped up and now include an aerobic component. This is working well.

Health education is the area the site has worked on the most, developing new materials as well as some modified from examples from the developed world etc. Denise noted that the importance of this aspect of the project ‘cannot be overstated’.

In terms of diet, initiatives include:

- Changing food habits in canteens – providing signage and information etc.
- Healthy cooking classes to give practical skills. The anganwadi workers now teach new mothers about healthy cooking for their babies and families, including reducing salt and oil use (healthier oils are too expensive to be substituted).

- Increase availability of fresh fruit and vegetables by teaching people how to cultivate their own gardens.

In healthcare settings, point-of-decision prompts were installed to encourage people to take the stairs etc.

There was not enough sports equipment in the community, so this, too, was addressed.

In terms of policy change, physical activity has now been included in the school curriculum at state level (instructors have been trained to go around the district to demonstrate strategies for physical activity to teachers). The team is delighted with this achievement for CIH.

Some reflections from India include:

- A heart patient observing tobacco posters: ‘Had somebody told me this 20 years back, I wouldn’t have suffered like this’
- A school teacher on health education classes: ‘After your classes my son insisted of not eating chips/fried items’

There is anecdotal and process/evaluation information available, which shows consistent change in the way that families are engaging in health, and a clear change in the approach of the anganwadis.

The policy-level changes, too, are sustainable (structural changes tend to be sustainable, and so are cost-effective). And the project has educated not only the public about behaviour change, but has also impacted on knowledge within the local university system.

### Lessons learned for the evaluation team

- There are already some successes, particularly the policy-level changes (e.g. once a tobacco ban is in place, the public health changes can be huge).
- Understanding community context is vital – useful information. Building partnerships is essential – and time-consuming. Doing the baseline data collection allowed for partnerships to be formed.
- Cultural sensitivity is essential.
- All the sites worked top-down (from political structures) and bottom-up. It was often the first time the academics had to do this.
- One of the sites does not have an academic partner, and such a partner has been found to be really important.
- Politics are important, and politics change over time – so do not make enemies at the beginning in case they end up in power!
- The more complex the project, the more partners you need.



### Summary

Final data collection is currently ongoing, and a couple of papers have been published so far on the environmental scan. There is some interesting data already, especially around blood pressure (which is worryingly high among some children).

The evaluation team is writing a book for Oxford University Press on intervention strategies.

Denise also noted that, initially, the project found it hard to find a funder, as NCDs were simply not on the radar of funders. CIH has been fortunate in that the PepsiCo Foundation has funded the project to date.

### Discussion

Tam Fry, Child Growth Foundation

- Tam asked about the Leicester site.

- Denise commented that the team could not find a comparison site with Leicester (an area in which over 35% of the population is East African or Indian).

Esther Trenchard-Mabere, NHS East London and the City

- Esther was most interested in the approach to the evaluation: how is the control site working, and is there a sense of what has had the most impact?
  - Control sites were chosen to be similar demographically, and within the same region, as they needed to be relatively close together for logistical reasons.
  - Although there is not yet detailed information on what has been most successful, the policy-level changes are particularly important.

Richard Smith, UnitedHealth Chronic Disease Initiative and C3 Board Member

- Richard asked whether the environment scan could be put into an overall, single-figure score, indicating the healthiness of the neighbourhood? This gets people's attention!
  - Yes, MATRIX is working on putting together a 'healthy community index'.

Babulal Sethia, Royal Society of Medicine

- Is alcohol use being addressed by CIH?
  - CIH is asking questions about alcohol use in the surveys, so they have data; but the package of interventions did not specifically include it – CIH is specifically focused on diet, physical activity and tobacco use.

Mary Phillips, University College, London

- There was an obvious north-south divide in the facilities on the Mexico City slides – why was this?
  - Denise responded that this 'just happened' – there was no obvious specific reason for it.

Phil Veasey, MEND

- Has the momentum of the project grown over time (for example, is there more corporate involvement)?
  - Yes, momentum has increased, and more partnerships are growing, with involvement of cultural centres, health centres etc. – a 'ricochet effect'.
  - Workplaces are part of the project, so business is involved (each site has to have to have 2,000 employees to take part – this could be made up of 10 smaller industries or one big company). The India site included the biggest condom factory in the world!

Tam McDonald, Harley Street World

- Tam commented that he understands face-to-face advocacy, but asked how much of the project is about social media and how will it evolve?
  - Media was part of the original project design, but it is difficult to do media that would not leach into the control community.
  - CIH has not addressed electronic media – though it would be great to get into this.
  - Mobile technology should be part of most interventions as we move forward.
  - Christine Hancock commented that a South African study found that mobile phones are currency – with the result that they can be hard to use for health purposes (e.g. pregnant women sold their phones to cab drivers).

Ian McDowell, NHS East London and the City

- The complexity of societies is really interesting – the CIH team went into the project with a learning attitude, and it is clear that the communities picked this up: that the project is not about lecturing, but is to learn about them. He found in Newham, doing slightly similar work (see

[www.communitiesofhealth.org.uk](http://www.communitiesofhealth.org.uk)), that this led to a change in deep values – his project started with a paternalistic attitude but changed completely, to see the communities as asset. So, has CIH done qualitative work on how attitudes have changed?

- Team members have observed this personally in their work, and it is certainly an example of how this can be successful – they can learn so much more by visiting the sites. All the researchers learnt a great deal from this kind of involvement, especially in China where it gave real value added.

Tim Oliver, Queen Mary, University of London

- Education about sunshine is important, too. Most of the data on exercise is confounded by sunshine – but this is not taken into account: we all need our mini-quotient of sunshine each day (a 10-minute sunshine break).
  - Denise noted the importance of keeping it simple: what is the role of sunshine in our lives? How do you think about ways in engaging in physical activity when it is over 100 degrees!

Phil James, International Obesity Task Force

- Professor James is intrigued by the CIH approach, and has just returned from discussions on similar ideas with Bloomberg in NY. But he commented that he has not, today, heard anything about the food system. For example, there has been a big backlash to public health proposals in Mexico, with intense lobbying from business ministry, and teachers and heads are paid for access to schools by vendors. In China, bikes are being eliminated etc. Did CIH look at the marketing of fast food, for example?

- Denise noted that they are taking this into consideration and that the policy reviews done in this project are at the country and local levels.
- The Mexican investigator, in particular, knows the community well and has relations right up to the Mexico City level (local government level, which often operates differently than at the national level). Partnering with the ministry of health in the city has allowed greater access to healthcare centres etc.
- In Mexico, the team is also working one-on-one with schools to try to change canteens (bringing them into many schools). There is also a model programme where parents run the canteen, bringing in healthy foods for children – this could be rolled out further in the next couple of months.
- You have to understand the politics, but at the ground level you manoeuvre through the politics.
- Denise gave one example, that of a middle-class mother in Mexico. As her sister has diabetes, she was allowed to attend a CIH workshop, at which she was overwhelmed with the information about sugar. Although she is physically active and does not look overweight, every day her family would have three full litre bottles of cola: they thought that is what you do when you are middle class in Mexico. The moment she heard that it has 10 spoons of sugar in the bottle, she changed her behaviour, commenting that she felt she had been killing her family.
- We need to think about where people cook, work, sleep, play etc., and mothers are often key to this. When you educate mothers they will do what is right for their families.



Stephen Hindle, Macmillan Cancer Support

- Are there country-specific things that can be done that reinforce sustainability?

- Health education, structural change, social marketing and community mobilisation all have to be tackled from multiple angles. There is a menu of things you can do – and a successful project should include aspects of all of them. For example, if physical activity is not put back in the school curriculum, children will not get enough exercise etc.
- It is a complex system, and we will have to be on top of these issues for the next 25 years.
- The food industry constantly changes things on us! Unlike a generation ago, when Denise was growing up, most of the food she ate was processed; her children today do not need to eat so much of it – there is more variety today in developed countries.
- The food industry controls what we eat – and C3's approach of holding discussions with the industry is essential if we are to make real progress.

#### Gordon Macmillan, MEND

- As well as the food industry, other industries that has been absent from this discussion are the pharmaceutical and insurance industries, developed to treat people who are ill. How can we treat society to keep it healthy? There is an opportunity here to leverage major funding on healthy societies.
  - Digital technology is really useful here.
  - We need to make people aware that choices are being made for them – so let's reframe the story from our perspective.
  - Denise was impressed with Waitrose, for example, in that the fresh fruit and vegetables are front and centre on entering the store. We should take what is good and works, and bring the organisations doing the good work into the story and promote their good practice.
  - Brainstorming around this would be useful!

#### Richard Smith

- Richard asked who owns the projects (i.e. what is the governance structure)?
  - The system of governance is the 'community coalition'. Each country team had to invite partners to the table, who then had to agree the interventions. CIH provided a menu of possible interventions, but which ones were chosen was a decision made at local level. There is also a local committee to run the project; membership suggestions were made by MATRIX (e.g. invite on to the committee the people in charge of education, or health, who else is important in the community, etc. – and include controversial people!).
  - Part of the evaluation is tracking who is in the committees, how many meetings they have, what is discussed etc.
  - Phil Veasey commented that, in the UK, you would need a catalyst. Denise noted the need to 'Keep it local'.
  - Academics can be authoritative, and we need to change such behaviour: active and reflective listening is a skill that anyone can develop.

#### Jonathan Govender, Bupa

- Will the interventions be ongoing after the project?
  - There is a sustainability plan for some parts of the project. The national sports authority is very engaged in Mexico; in China the hope is to get funding to spread it throughout the country (the relationship with Oxford University is very important here); and the training of the anganwadi workers will be the sustainability piece in India (the anganwadi workers are paid by the government).

#### Pat Goodwin, Wellcome Trust

- Are these projects going to be implemented more widely?

- In India, a reason for buy-in at higher levels (at university and at state levels) was the hope that the model will be replicated beginning with the control community, which was part of the original agreement. The hope is to scale up, but this is a resource issue.

David Taylor, University of London

- It was commented earlier that ‘People make our choices for us’, so what are the changes CIH is making: are they macro, social changes or all about individual choice (e.g. choosing to smoke)? What are they trying to change – is it about getting to a point where we have tobacco police, or is it informed consumerism?
  - Informed consumerism is part of it – but, especially when thinking about children, there is some structural change that needs to happen. The opportunity for physical activity is particularly important.
  - CIH cannot change everything! – for example, it is very hard to make fruit and vegetables available to all.
  - People will make their own choices – but when people learn, they start to change (such as the anganwadi workers’ own behaviour change). We have failed as a society in terms of education on salt, for example.
  - Christine said that research has shown that tackling salt intake and physical activity is much more cost-effective than fruit and vegetable availability.

In closing, Christine encouraged those attending the seminar to continue their discussions over a coffee, and asked anyone who wants to sponsor a seminar in the future to contact C3.

The next seminar is on 21 July, when Dr Craig Nossel from Discovery (South Africa) will talk about financial incentives in changing behaviour, including recent work on a healthy workplace index.