



Glasgow's Healthier Future Forum 9

The Psychological, Social and Biological Determinants of Ill Health (pSoBid) Study

Event Report

Thursday 25 February 2010



Overview

The 9th Glasgow's Healthier Future Forum took place at the Hilton Grosvenor Hotel on Thursday 25 February 2010.

The focus of the forum was the pSoBid study (The Psychological, Social and Biological Determinants of Ill Health Study). pSoBid was a cross sectional population-based study which set out to investigate the psychological, behavioural and biological determinants of ill health within population groups in Glasgow that differed in socioeconomic status. Study recruitment took place through GP practices located in the most and least deprived areas of Greater Glasgow, enabling comparisons to be made between these two groups. The study involved adults in the age range 35-65 years.

The event was Chaired by Dr David Batty, a member of the pSoBid team and a Wellcome Trust Fellow based at the MRC Social and Public Health Sciences Unit, Glasgow.

The format consisted of a series of short presentations, giving context and background to the project and highlighting findings and observations from specific study areas. Each presentation was followed by the opportunity for points of clarification and questions. The main interaction time with delegates came during the panel discussion session at the end of the morning. Led by the Chair, Dr David Batty, delegates were able to pose questions relating to the pSoBid study, the wider context in which the study was carried out and the implications of the study findings for public health and health improvement.

For a copy of the event programme see Appendix 1.

Members of the pSoBid research team presented new and emerging findings.

- Professor Carol Tannahill, Director, Glasgow Centre for Population Health;
- Professor Chris Packard, R & D Director, NHS Greater Glasgow & Clyde;
- Dr Kevin Deans, Specialist Registrar, Glasgow Royal Infirmary;
- Professor Keith Millar, Professor of Medical Psychology, University of Glasgow;
- Dr Jonathan Cavanagh, Honorary Clinical Academic Consultant, University of Glasgow;
- Dr Paul Shiels, Senior Lecturer in Transplantation, University of Glasgow; and
- Dr Harry Burns, Chief Medical Officer, Scottish Government.

Approximately 120 delegates attended (despite poor weather causing a number of problems to many journeys), and a list of those who registered can be found in Appendix 2.

To assist delegates in understanding the terminology and abbreviations used in the presentations a glossary of terms was also provided (Appendix 3).

Presentations and key discussion points

Professor Carol Tannahill, Background to pSoBid

Professor Tannahill opened the seminar with a presentation outlining the context and background to the study, the study methodology including participant recruitment, the range and scale of the data collected and how the data were collected from participants over two study appointments¹.

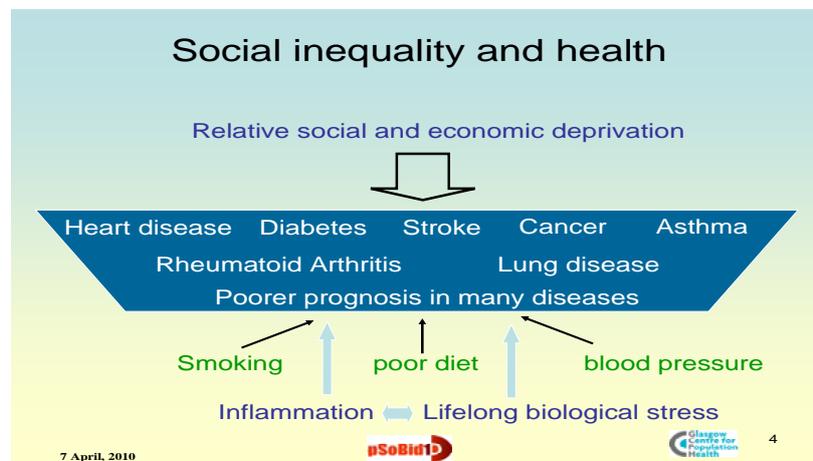
Psychological	Personality (EPQ); Mental wellbeing (SoC, hopelessness, self-esteem, self-efficacy)
Cognitive	Mental performance; cognitive impairment; memory; reaction time; premorbid IQ; MRI scans
Social	Early life circumstances; current social and economic circumstances; education
Biological	Atherosclerosis; anthropometry; inflammation; telomere length
Health/disease	Health-related behaviours; health history; mental health (GHQ); current treatments
Demographic	Age, gender, area-based deprivation

9 March, 2010   21

Professor Tannahill also presented initial study findings highlighting some differences between the two study groups in classical risk factors and self-reported health behaviours, in physical biology (height, weight etc) and in psychological wellbeing.

Professor Chris Packard, Early life social deprivation and chronic disease

Professor Packard discussed the impact of social and economic inequality on health and specifically the impact of adverse early life deprivation on adult health outcomes. This presentation included a description of inflammation and the innate immune system, and the influence of inflammation on the development of heart disease and other chronic diseases.



¹ 'Psychological, social and biological determinants of ill health (pSoBid): study protocol of a population based study'. Velupillai *et al.*, BMC Public Health (2008) 8:126

Participants who took part in the research were asked a number of questions relating to their life and family circumstances at the age of 11. The study results to date show that participants in the Most Deprived study group in general:

- Came from larger families and were more likely to have shared a bedroom with a sibling(s);
- Were likely to have parents who rented their home rather than owned;
- Were shorter in height than their more affluent counterparts;
- Had elevated inflammatory biomarkers, poorer cognitive performance and poorer lung function.

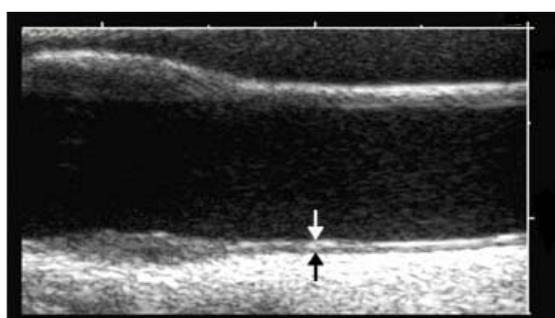
Analysis of the pSoBid data has shown that childhood living conditions may impact on the state of activity of the innate immune system and activation of the endothelium. Father's occupational category (professional, manual or non-manual), whether or not the participant's parents owned their own home and the number of people who shared a bedroom (as an indicator of overcrowding) showed significant associations with markers of inflammation and activation of the endothelium. These findings add weight to the argument that social and family environment in early life influences, through biological pathways, the tendency to develop common, chronic disease in later life.

A paper presenting and discussing these results is currently 'under review' with a public health journal.

In summary, Professor Packard concluded by saying that the Most Deprived group had more (potentially) adverse life conditions at age 11 years, including family overcrowding, poorer nutrition and less advantageous family income. In the pSoBid sample, these early life adverse conditions are linked to higher levels of chronic inflammation and endothelial activation in adulthood. Lifelong 'stress', in both social and biological terms, may lead to the increased propensity for a range of chronic diseases in later life.

Dr Kevin Deans, Effects of area level socioeconomic deprivation on atherosclerosis

Dr Deans presented his recently published work² investigating the relationships between area level deprivation and ultrasound markers of atherosclerosis, namely the carotid intima-media thickness (cIMT) and plaque score.



Carotid intima-media thickness



Carotid plaque

² 'Differences in atherosclerosis according to area level socioeconomic deprivation: cross sectional, population based study' Deans *et al.*, BMJ (2009) 339:b4170

During the second study visit, an ultrasound was taken of participants' carotid artery. Dr Deans showed anonymised participant ultrasound images to illustrate a healthy carotid artery with a small cIMT (0.356mm) and an artery in poor condition with a large cIMT (1.126mm). Images were also shown of plaque free arteries and arteries where plaques were readily identifiable.

Differences in ultrasound markers of atherosclerosis between groups and by gender were presented and discussed. cIMT was higher in the most deprived group. This difference was statistically significant for men but not for women. Intima-media thickness increased with age, as expected, but the difference in thickness between the Most and Least Deprived groups only reached statistical significance in the oldest age group (56.3 to 66.5 years) in men and did not achieve significance at any age in women. In contrast, the difference in mean plaque score between groups was highly significant in men in the two oldest age groups (46.8 to 56.2 years and 56.3 to 66.5 years) and in the oldest age group (56.3 to 66.5 years) in women.

Dr Deans concluded by summarising the data he had presented. cIMT was higher in the Most Deprived group but plaque score differences between the groups were much more statistically significant. Neither the classical nor the emerging risk factors measured in pSoBid explained the deprivation-based differences in these markers of atherosclerosis. Dr Deans finished by confirming that early life factors appeared to be important in explaining the risk of presence of plaque.

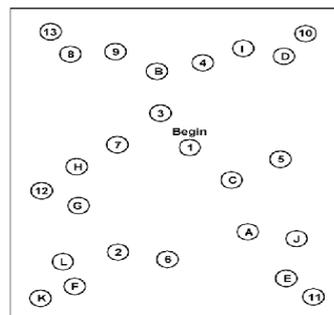
Professor Keith Millar, Deprivation and cognitive performance

Professor Millar presented new findings and discussed the associations between deprivation and cognitive performance. He highlighted the importance of maintaining good cognitive health throughout the life course and discussed the established associations between cognition, inflammation, age and socioeconomic status – where lower cognitive performance is associated with inflammation and (separately) with low social status; and alternatively low social status is associated with high inflammation. Professor Millar therefore posed the question ‘What is the impact on cognitive performance if you are inflamed *and* deprived?’

As part of the pSoBid study visits participants completed a range of cognitive function tests to assess the cognitive domains of executive function (as tested by the Trail B test and the Stroop test), memory (as tested by the Auditory Verbal Learning Test (AVLT)), cognitive performance (estimated from the NART II test) and attention and speed of processing (as tested by the Choice Reaction Time (CRT) test). Professor Millar explained how each test was completed by participants and provided examples of each.



The Stroop Test



The Auditory Verbal Learning Test (AVLT)

Study results show that cognitive performance declines with increasing age and cognitive performance is significantly lower in the Most Deprived group. To investigate why cognitive performance differs between the two study groups multivariate modelling was carried out and has found that:

- Adjusting for inflammation abolishes or reduces the difference between the groups in Stroop and AVLT performance. Adjusting for vascular factors abolishes the AVLT difference;
- Trail B performance difference was abolished by adjusting for education;
- CRT performance between group difference was not abolished after the progressive addition of covariates.

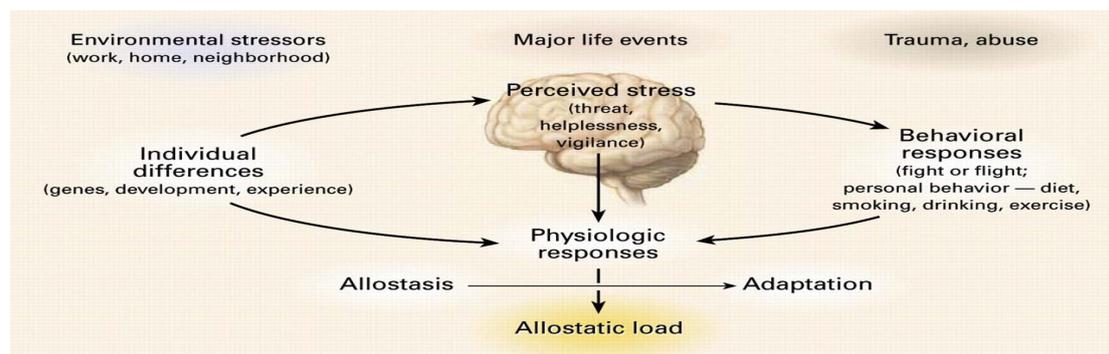
When adjusting for cardiovascular risk factors in the multivariate models, the difference between the groups remains for CRT and Trail B but is abolished for Stroop. Further adjustment for inflammation was required to abolish the AVLT between group difference.

Professor Millar concluded by saying that the pSoBid data replicate existing findings of differences in cognitive performance between affluent and deprived groups. The novelty in the pSoBid data is in ascribing these differences, in part, to vascular and inflammatory factors, both of which are amenable to intervention.

Dr Jonathan Cavanagh, Preliminary MRI neuroimaging data

Dr Cavanagh presented emerging findings from preliminary, MRI neuroimaging data from the study and discussed the concept of ‘allostatic load’, why we use MRI scanning and neuroimaging techniques to study the brain and who was scanned as part of the study.

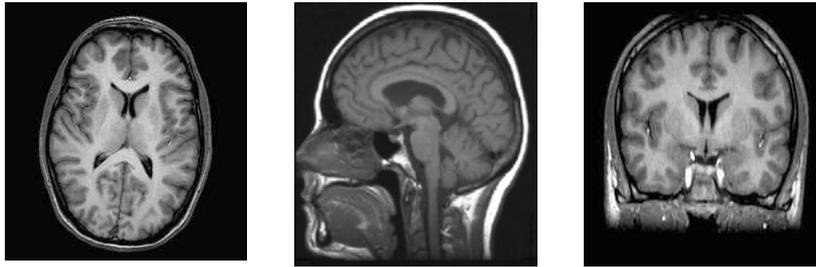
The concept of allostatic load refers to the ‘wear and tear’ the body experiences when repeated allostatic responses (body responses to stress) are activated during stressful situations. Dr Cavanagh discussed how the brain can undergo structural changes in response to chronic stress and how these changes usually occur in areas important for cognition and emotion.



[McEwen, BS. *Physiol Rev* (2007) 87: 873-904]

As part of the study 42 men (21 from the Least Deprived group and 21 from the Most Deprived group, matched by age group) were recruited to undergo 3T structural MRI scans. Dr Cavanagh discussed the usage of MRI scanning in neuroimaging, how MRI scanning works and presented a range of images of scans from different angles,

highlighting the degree of detail and precision that the scans provide, including the identification of abnormalities.



In this small sample there are tentative indications of the impact of chronic stress on two main anatomical features:

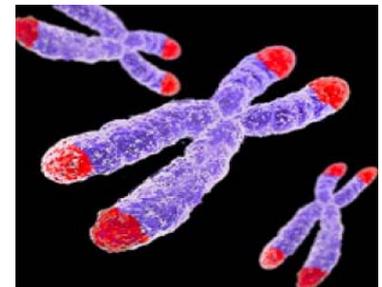
- The cerebellum appears to be sensitive to early life stress;
- Changes in white matter volume may relate to multiple depriving factors.

This exploratory area of work is ongoing.

Dr Paul Shiels, The impact of socioeconomic status and lifestyle on biological ageing and disease: what puts miles on your clock?

Dr Shiels presented emerging findings on the impact of socioeconomic deprivation and individual lifestyle on biological ageing and risk of chronic disease. Dr Shiels considered how we age via both biological and chronological mechanisms and the role that genetics, lifestyle and behaviour play in the ageing process.

- Telomeres are cap ends (shown in red) at the end of chromosomes.
- Their function is to prevent damage to the chromosome.
- Telomeres shorten each time a cell divides and their length therefore reflects an individual's 'miles on the clock'.
- Telomere length is linked to an individual's lifespan and to certain disease outcomes. More 'miles on the clock' means greater likelihood of disease.



Results from pSoBid to date indicate that:

- Telomeres get shorter with increasing chronological age.
- Being male doubles your chances of having shorter telomeres in the oldest age group (over 55 years).
- The rate of ageing is increased by having a low income and poor diet, especially in the oldest age group.
- Smoking accelerates ageing.
- No associations found to date with area based deprivation, alcohol intake or physical activity level.

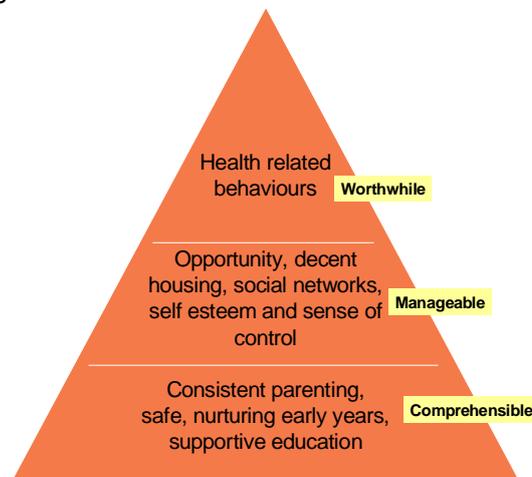
Work is continuing to explore associations between telomere length and socioeconomic status, lifestyle, classical and emerging disease risk factors and cognitive function.

Dr Harry Burns, Implications of study findings for population health

In response to the morning's presentations, Dr Burns discussed the complicated and complex nature of health improvement and the impact of social and economic disadvantage on health outcomes throughout the lifecourse.



Dr Burns highlighted and discussed the work of Dr Aaron Antonovsky (1923-1994), an American-Israeli medical sociologist. Through research with female survivors of the concentration camps of the second world war, who stayed healthy despite their experiences, Antonovsky formed the concept of 'Sense of Coherence' which reflects a person's capacity to respond to stressful situations. Dr Burns considered the importance of the concept in the management of stressful situations and staying well, and proposed that how people view their life has a positive influence on their health. Antonovsky stated that for the creation of health, the social and physical environment must be comprehensible (people need the ability to understand what happens around them), manageable (the ability to manage situations on their own or through the support of significant others) and meaningful (the ability to find meaning in a situation), otherwise chronic stress is the result. Taking these ideas, Dr Burns hypothesised that the concept was especially important in the early years and highlighted the need for early year's intervention, support during pregnancy and consistent parenting.



Dr Burns also discussed why more advantaged groups find it easier to make positive health changes (time, finance, literacy etc) than do more disadvantaged groups

(harder to reach, poorer access to services, find it harder to change behaviour) and that a 'one size fits all' approach to health promotion is no longer suitable. It is time to consider the needs of individuals and communities when trying to address inequalities in health.

Forum conclusion

Following a highly interactive panel discussion, Dr Batty brought the event to a close by thanking the speakers and delegates for a productive and thought provoking morning and extending an invitation to continue the conversation during lunch.

Feedback and event evaluation

Presentation and discussion feedback

Feedback on the event was gathered through completed feedback forms (see Appendix 4). Feedback was grouped under two different headings – one relating to the pSoBid study and the presentations given, and the other to the Glasgow's Healthier Future forum events, and how these can be developed in the future.

Comments specific to pSoBid and information delivered at GHFF9

This event and the information provided on the pSoBid study was found, by most participants, to be very interesting, and delivered in a way which was easy to understand despite its complex nature. An enthusiasm was generated in the room for the potential future impact of the results.

“Excellent, short presentations were good and captured my concentration. Good pulling together at end. Enjoyed panel at end. Very well facilitated, time frame and questions well controlled”.

“I really appreciate how speakers explained issues in a layman/non expert way, even though they were presenting information on scientific studies. I also liked the format of short study presentations and then looking at the implications and the opportunity to hear from the audience some views on how this might be used”.

The range of disciplines involved in the pSoBid study demonstrated the breadth of the project and this was again received well by attendees.

“For the first time that I can recall, data from a range of experts has been drawn together to make sense. Barriers have clearly been overcome from a disciplinary point of view, and interestingly the biological versus sociological paradigm has been destroyed. A population-biological approach, but targeted at sociological factors”.

“It has been very interesting to understand the different aspects/contributors contributions and interpretations of pSoBid. So much richer than just by reading the data/summaries etc. Keeps inspiration and thinking going long after the events”.

However, despite acknowledging that attempts had been made to tailor the presentations to suit the audience, some respondents still felt that there was too much technical terminology used and that this made the session confusing, although such comments were made less frequently on feedback sheets than were those commending the presenters for speaking about technical issues in a clear and concise way.

Some people felt that the 'range' of participants was not wide enough and that there was a notable lack of CH(C)P representation. On the other hand, the feedback sheets contained as many positive comments about the quality and breadth of knowledge and understanding of participants in the room.

The points participants highlighted as being most notable from the presentations and discussion included the idea that there is no one single problem to deal with and that health is complex in nature with an ever more evident need for multi-disciplinary collaborations. The majority of those who completed feedback sheets also emphasised early years interventions and the need for these to be strengthened.

"The complex and complicated nature of these issues and these need a complex response at community and individual level".

"Recurring theme of the importance of the early years and the need for secure, stable and coherent growth environment. Need for ongoing longitudinal study and qualitative evaluation".

Comments on this event and Glasgow's Healthier Future Forum events in general

The event was well received, despite issues with heating in the room (this was out with the control of the organisers as the venue's heating was not working properly at that time). The Healthier Future Forums are generally seen as being important, providing an effective forum for networking and bringing people from different disciplines and points of view together, and generating new ideas and developing new perspectives.

"It is useful in generating new ideas/new perspectives and understanding".

"Very useful. Excellent means of finding about recent research and findings and for professionals to share experiences/ideas".

"I thought it was very interesting useful in bringing different strands of work together and stimulating ideas discussion".

A clearer indication of intended outcomes as well as 'what will happen next' with the ideas generated during the event(s) would be beneficial for participants as well as more time to discuss findings. Table discussions were regarded as being more favourable and effective by some, although others found the panel discussion and question and answer session to be more appropriate to the nature of the event.

"Good to get people together from different spheres. I suppose I'm always left asking "what do we do with this information" How can we use it to make a change?"

"Very useful but more time is required for discussion and mutual learning amongst participants".

Appendix 1 – Event programme

Glasgow's Healthier Future Forum 9

The Psychological, Social and Biological Determinants
of Ill Health (pSoBid) Study

Thursday 25 February 2010
Hilton Grosvenor Hotel, Great Western Road, Glasgow

9.00 – 9.30	Registration and Tea/Coffee
9.30 – 9.50	<p>Welcome and introduction Professor Carol Tannahill Director, Glasgow Centre for Population Health</p> <p>Dr G David Batty (Chair) Wellcome Trust Fellow, MRC Social & Public Health Sciences Unit, Glasgow</p>
9.50 – 10.10	<p>Early life deprivation, inflammation and chronic disease Professor Chris Packard Director of R & D, NHS Greater Glasgow & Clyde</p>
10.10 - 10.30	<p>Effects of area level deprivation on atherosclerosis Dr Kevin A Deans Specialist Registrar, Glasgow Royal Infirmary</p>
10.30 - 10.50	<p>Deprivation and cognitive performance Professor Keith Millar Professor of Medical Psychology, University of Glasgow</p>
10.50 - 11.10	Tea/Coffee
11.15 – 11.45	<p>Emerging study findings</p> <p>Early MRI scanning results Dr Jonathan Cavanagh Honorary Clinical Academic Consultant, University of Glasgow</p> <p>The impact of socioeconomic status and lifestyle on biological ageing and diseases Dr Paul G Shiels Senior Lecturer in Transplantation, University of Glasgow</p>
11.45 – 12.15	<p>Implications of study findings for population health Dr Harry Burns Chief Medical Officer, Scottish Government</p>
12.15 – 12.55	Panel discussion
1.00	Concluding remarks and lunch

Appendix 2 – List of registered delegates

First name	Surname	Organisation
Tomi	Ajetunmobi	ISD Scotland
Beverley	Armstrong	University of Glasgow
Attiq	Asghar	NHS Greater Glasgow & Clyde
Raihan	Ashraf	NHS Greater Glasgow & Clyde
Brian	Baker	Journalist
David	Batty	MRC Social & Public Health Sciences Unit
David	Barlow	
Dorothy	Bedford	University of Glasgow
Jane	Beresford	NHS Greater Glasgow & Clyde
Faisal	Bhatti	NHS Health Scotland
Scott	Blackwell	NHS Greater Glasgow & Clyde
Lewis	Blair	Crossreach
Wyn	Boyd	Glasgow City Council
Robert	Brogan	NHS Lanarkshire
Claire	Brown	East Renfrewshire Council
Judith	Brown	University of Glasgow
Harry	Burns	Scottish Government
Susan	Byrne	Rocket Science
Irene	Campbell	NHS Lanarkshire
Rebecca	Campbell	NHS Greater Glasgow & Clyde
Taryn	Carlton	Scottish Recovery Network
Jim	Carruth	Scottish Centre for Regeneration
Muriel	Caslake	University of Glasgow
Jonathan	Cavanagh	University of Glasgow
Lynne	Cherry	University of Glasgow
Charles	Clark	NHS Lanarkshire
Mark	Cohen	NHS Greater Glasgow & Clyde
Della	Collins	Glasgow Caledonian University
Josephine	Cooney	University of Glasgow
Jane	Cooper	NHS Ayrshire & Arran
Flora	Cornish	Glasgow Caledonian University
Jennie	Coyle	Glasgow Centre for Population Health
Carol	Craig	Centre for Confidence and Wellbeing
Pauline	Craig	Glasgow Centre for Population Health
Peter	Craig	Chief Scientist Office
Fiona	Crawford	Glasgow Centre for Population Health
Etive	Currie	Glasgow City Council
Gordon	Daniels	GCPH/University of Glasgow
Kevin	Deans	Glasgow Royal Infirmary
Robert	Deans	The Salvation Army
Evangelia	Demou	University of Glasgow
Margaret	Donaldson	Ruchill Youth Project
Jackie	Dryburgh	Glasgow City Council
Lawrie	Elliott	Edinburgh Napier University
William	Ellis	Scottish Recovery Network
Linda	Entwistle	Social Work
Jackie	Erdman	NHS Greater Glasgow & Clyde
Joanne	Farrow	Scottish Government
Lorna	Forde	NHS Greater Glasgow & Clyde

Teresa	Fowler	Cardonald College
Bridget	Gallagher	South East CHCP
Marcia	Gibson	MRC Social & Public Health Sciences Unit
Jacqueline	Gillespie	Glasgow Caledonian University
Anne	Gordon	NHS Greater Glasgow & Clyde
Elizabeth	Gray	University of Glasgow
Katy	Green	Arthritis Care in Scotland
Laurence	Gruer	NHS Health Scotland
Edward	Hall	University of Dundee
Debbie	Hamilton	Practice Manager
Sandra	Hands	Scottish Prison Service
Edward	Harkins	SURF
Catherine	Harpur	NHS Greater Glasgow & Clyde
Irene	Hastie	Glasgow Centre for Population Health
Mahwish	Hayee	University of Glasgow
Fiona	Hayes	Culture & Sport Glasgow
Philip	Hore	
Robert	Hoskins	University of Glasgow
Catriona	Hughes	NHS Lanarkshire
Colin	Hunter	Glasgow Caledonian University
Rosie	Ilett	Glasgow Centre for Population Health
Sally	Inglis	University of Glasgow
Sarah	Jarvis	NHS Lanarkshire
Maureen	Johnson	University of Glasgow
Paul	Johnston	Robertson Centre for Biostatistics
Sarah	Jones	Health and Safety Executive
Runima	Kakati	NHS Health Scotland
Kahlan	Karim	University of Glasgow
Ade	Kearns	University of Glasgow
Parveen	Khan	NHS Health Scotland
Marie	Kimmins	Laguna
Susan	Knox	Department of Clinical Biochemistry
Mark	Langdon	Ruchill Youth Project
John	Leckie	North Glasgow CHCP
Matthew	Lee	BBC Scotland
Caroline	Leeming	NHS Greater Glasgow & Clyde
Catherine	Linney	ERC CHCP
Suzanne	Lloyd	Robertson Centre for Biostatistics
Linda	Loftus	Glasgow Caledonian University
Gavin	MacCall	Scottish Government
Elaine	MacDonald	
Ewan	MacDonald	University of Glasgow
Helen	MacLean	Culture & Sport Glasgow
Lorna	MacPherson	University of Glasgow
Liz	Maguire	Glasgow City Council
Debbie	Mason	NHS Greater Glasgow & Clyde
Phil	Mason	University of Glasgow
Alex	McConnachie	Robertson Centre for Biostatistics
Lien	McGartland	West Dunbartonshire Council
Kathleen	McGill	East Dunbartonshire Community Health Partnership
Karen	McGuigan	NHS Lanarkshire
Kieran	Mclvor	Culture & Sport Glasgow

Tony	McKay	Culture & Sport Glasgow
Fiona	McKie	Glasgow Centre for Population Health
Carol	McKinnon	Castlemilk Health Centre
Jennifer	McLean	Glasgow Centre for Population Health
Kelda	McLean	Glasgow Centre for Population Health
John	McMillan	NHS Greater Glasgow & Clyde
Tom	McMillan	University of Glasgow
Keith	Millar	University of Glasgow
Helen	Minnis	University of Glasgow
Kenneth	Mitchell	University of Glasgow
Tim	Mitchell	Glasgow City Council
Dorothy	Moodie	NHS Greater Glasgow & Clyde
Linda	Morris	NHS Greater Glasgow & Clyde
Debdas	Mukherjee	Glasgow Housing Association
Jenna-Marie	Mullen	University of Glasgow
Liz	Murray	
Brian	O Suilleabhain	NHS Lanarkshire
Chris	Packard	NHS Greater Glasgow & Clyde
Laura	Parker	West Dunbartonshire Council
Simon	Parsons	BBC Scotland
Luisa	Piluso	Social Work
Gayathri	Ravishankar	Arran Resource Centre
Georgina	Reilly	West Dunbartonshire Council
Louise	Rennick	NHS Health Scotland
Gerry	Reynolds	Homeless Addiction Team
Nicola	Ridgway	University of Glasgow
Tony	Robertson	MRC Social & Public Health Sciences Unit
Naveed	Sattar	University of Glasgow
Tom	Scott	NHS Greater Glasgow & Clyde
Janice	Scouller	NHS Lanarkshire
Paul	Shiels	University of Glasgow
Deborah	Shipton	Glasgow Centre for Population Health
Frances	Skelton	NHS Greater Glasgow & Clyde
David	Smith	
Grace	Stewart	University of Glasgow
Philip	Stewart	University of Glasgow
Andrew	Tannahill	NHS Health Scotland
Carol	Tannahill	Glasgow Centre for Population Health
Stuart	Telfer	University of the West of Scotland
Joseph	Theodore	Glasgow Caledonian University
Louise	Todd	NHS Greater Glasgow and Clyde
Elizabeth	Tolmie	Glasgow CTU
Madeleine Ann	Tristram	University of Glasgow
Julie	Truman	NHS Greater Glasgow & Clyde
Jean	Tumilty	East Dunbartonshire Council
Yoga	Velupillai	
Mike	Wallace	NHS Greater Glasgow & Clyde
David	Walsh	Glasgow Centre for Population Health
Paul	Walsh	University of Glasgow
Eddie	Warde	Glasgow City Council
Janice	Watson	ISD Scotland
Pauline	Watt	University of Glasgow

Clare	Wunsch	Hamilton Sports Council
Natalie	Winston	Glasgow Caledonian University
Heather	Woods	NHS Lanarkshire
Paul	Wraight	NHS Lanarkshire

Appendix 3 – Glossary of terms

Auditory Verbal Learning Test (AVLT)

The AVLT assesses short-term learning and recall by requiring the subject to learn a list of fifteen words. The subject's score is the number of words correctly recalled after five presentations of the list.

Carotid Intima-Media Thickness (cIMT)

Measurement of the carotid artery wall intima-media thickness is a commonly used non-invasive marker of atherosclerosis and a reliable indicator of future risk of coronary heart disease.

Choice Reaction Time (CRT)

CRT is a test of speed of information processing and attention. The subject is presented at random and unpredictably with one of the digits 1 to 5 on a computer screen. They respond by pressing the appropriate response key on the keyboard. Their reaction time indicates the speed with which they detect the stimulus and respond to it.

C Reactive Protein (CRP)

CRP is a protein found in the blood. Levels rise in response to inflammatory processes occurring in the body.

Intercellular Adhesion Molecule-1 (ICAM-1)

ICAM is a molecule secreted by cells that line arteries (endothelium) when the cells become agitated due to local inflammation or other forms of stress. ICAM causes the endothelium to become 'sticky' so that passing scavenger cells in the bloodstream (macrophages) are caught and helped to penetrate the artery wall where they can deal with the problem.

Interleukin-6 (IL-6)

Like CRP, IL-6 is a marker of inflammation. It is a protein secreted by T cells and macrophages to stimulate the immune response to infection, injury and tissue damage leading to inflammation.

Magnetic Resonance Imaging (MRI)

Magnetic resonance imaging (MRI) is a medical imaging technique most commonly used to visualize detailed internal body structures that do not show up well on x-rays.

Scottish Index of Multiple Deprivation (SIMD)

The Scottish Index of Multiple Deprivation (SIMD) presents a picture of multiple deprivation across Scotland. The index reports on a range of life circumstances including income, employment, health, education, access to services, housing and crime. Areas are ranked according to their SIMD scores.

Stroop Test

The Stroop test is a measure of attention, cognitive flexibility and processing speed and it is used in the evaluation of executive functions of the frontal areas of the brain. The test requires the subject to inhibit the dominant tendency to read the name of a visually presented colour word (e.g. "blue") and instead state the colour in which the word is printed (e.g. the word "blue" printed in green ink would require the response "green"). The score is the time taken to complete the task.

Telomere

Telomeres are pieces of DNA at the end of chromosomes whose length is a measure of 'miles on the clock' (measure of biological aging). Shorter telomeres predict certain disease outcomes.

Trail-Making Test (version "Trail B")

The Trails test is a test of visual attention, task switching and processing speed. Trail B presents the subject with the numbers 1 to 13 and the letters A to L printed randomly across an A4 sheet. The test requires the subject to join the numbers and letters in the following alternating sequence: 1 to A, A to 2, 2 to B, B to 3 and so on. The score is the time taken to complete the task.

von Willebrand Factor (vWF)

vWF is also a marker of inflammation. It is a blood protein involved in haemostasis, the complex process which causes the bleeding process to stop.

Appendix 4 – Delegate event evaluation form



**Glasgow's Healthier Future
Forum 9**

'pSoBid'

Thursday 25 February 2010

Please provide us with general comments about your experience of this meeting of Glasgow's Healthier Future Forum:

Which of the issues discussed, or points made at this Forum, do you consider most important?

Have you attended any previous meetings of the Forum?

Yes / No

Have you attended any other Glasgow Centre for Population Health events?

Yes / No

If yes, please list details here:

What is your view on the usefulness of the Forum?

How might we improve future events?

Optional information:

Name: _____

Organisation: _____

If you wish to be added to the GCPH network of contacts and be notified of future events please leave us your email address:
