

BACAPH Policy Development

Introduction to a Life course intervention framework

Topic: the general approach

Introduction - a simple matrix

Traditionally public health has used the concepts of an interaction between an agent (causing the problem), the host (experiencing the problem) within the wider physical and social environment, which may help or hinder the interaction between the agent host, and the potential condition resulting from this interaction as a model for structuring an approach to tackle health problems - see figure 1. This conceptualisation has been applied to both infectious disease and non-communicable disease (for example agent: air pollution, host: children, environment: traffic density and proximity, condition: asthma). Interventions may be targeted on the agent (air pollution), the host (immunisation/cycle helmets) or the environment (traffic calming).

This relatively straightforward model sometimes must be expanded to include additional essential elements such as vectors (vectors carry the agent e.g. mosquitoes and malaria, cars and kinetic energy). Expanding the concept of "environment" can include an element of responsibility - lifestyles are generally the responsibility of individuals, determinants are defined as being outside the immediate control of individuals and then specific health interventions the responsibility of a public health or health service. The concept of "host" can also be expanded to include a child and their family, the local community where they reside, and the wider society in which they live.

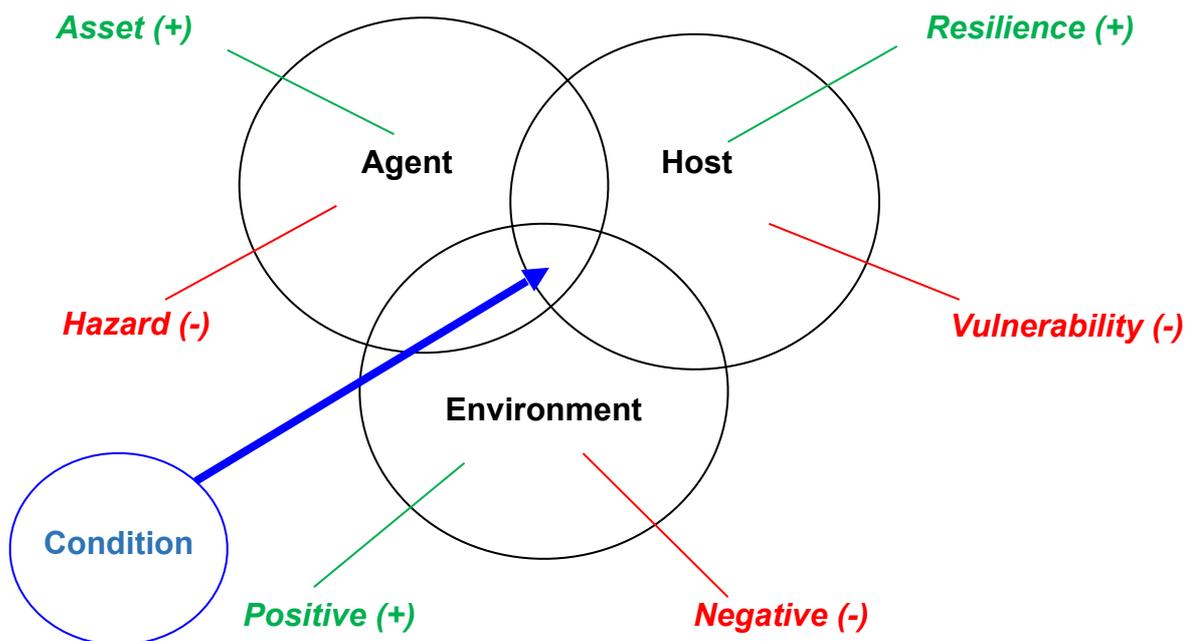


Figure 1: illustrating the interaction between positive (beneficial) and negative (harmful) factors relating to the host, the agent and the environment relevant to the creation of a disease or condition.

This model can be expanded to create a simple 3 x 3 framework to help the planning and organisation of public health related interventions. The relevant agents/assets can be inserted into the relevant cell when creating either an aetiological framework, or, an interventions framework.

		Environment		
		Lifestyles	Determinants	Services
Host	Child and family			
	Community			
	Society			

Table1: a nine cell matrix illustrating the interaction between host and environment for structuring PH intervention programmes.

In a medical (pathogenic) model the agent is generally seen as a negative influence (a hazard), but in a health (salutogenic) model the agent may also have a positive influence (an asset). Therefore interventions may therefore be orientated to protecting individuals, communities or societies against harmful agents (hazards) or promoting increased exposure to positive agents (assets) which can promote the health and well-being of individuals, communities or whole societies.

While this generic framework is generally helpful, it must be remembered that some agents can be both positive and negative for example sunlight is helpful in vitamin D metabolism and the prevention of rickets, but overexposure is harmful in terms of sunburn and melanoma. Likewise there is overlap between determinants of health and lifestyles for example poverty may be part of macroeconomic policy but individuals may use their limited resources unwisely.

This simple 3 x 3 matrix is merely an aide memoir and can be expanded or contracted to provide greater or lesser detail, as required, when planning public health programmes.

Introduction - the life course pathway

This simple matrix models the interaction of host, agent and environment at one moment in time. The life course pathway approach recognises that health and ill-health, is created through a series of exposures to both positive and negative lifestyles and determinants throughout life from conception through to adulthood.

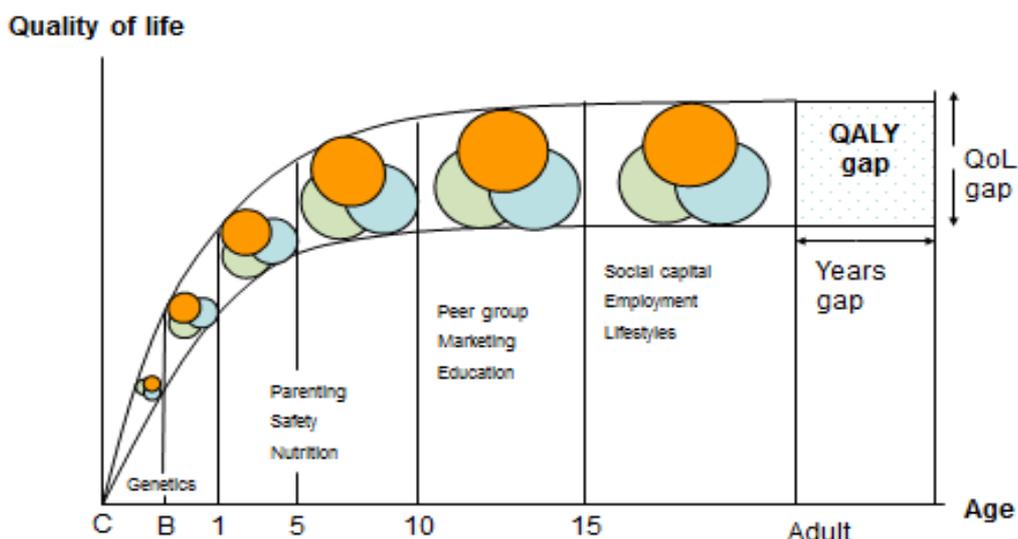


Figure 2: illustrating accumulating health/ill-health over time through different exposures to lifestyles, determinants or PH programmes creating a QALY gap between the best and worst exposures over time.

Figure 2 has age on the horizontal axis and quality of life on the vertical axis. Three overlapping circles represent interventions relating to lifestyles, determinants and services. Two trajectories for life course pathways are illustrated, the upper line represents greater exposure to positives, the lower line represents greater exposure to negatives and the difference between the two illustrated by the QALY (quality adjusted life year) gap. The desired public health outcomes would be both to improve duration and quality of life, and reduce inequalities/in equities.

This concept of accumulating health or ill-health depending on exposure to either assets or hazards can be expressed as a diagram (Fig. 3) with the orange triangle representing child/family/community, the green triangle outcomes (measures of health, in equitably and sustainability) with lifestyles (assets and hazards) and determinants (assets and hazards) influencing at different life stages life stages.

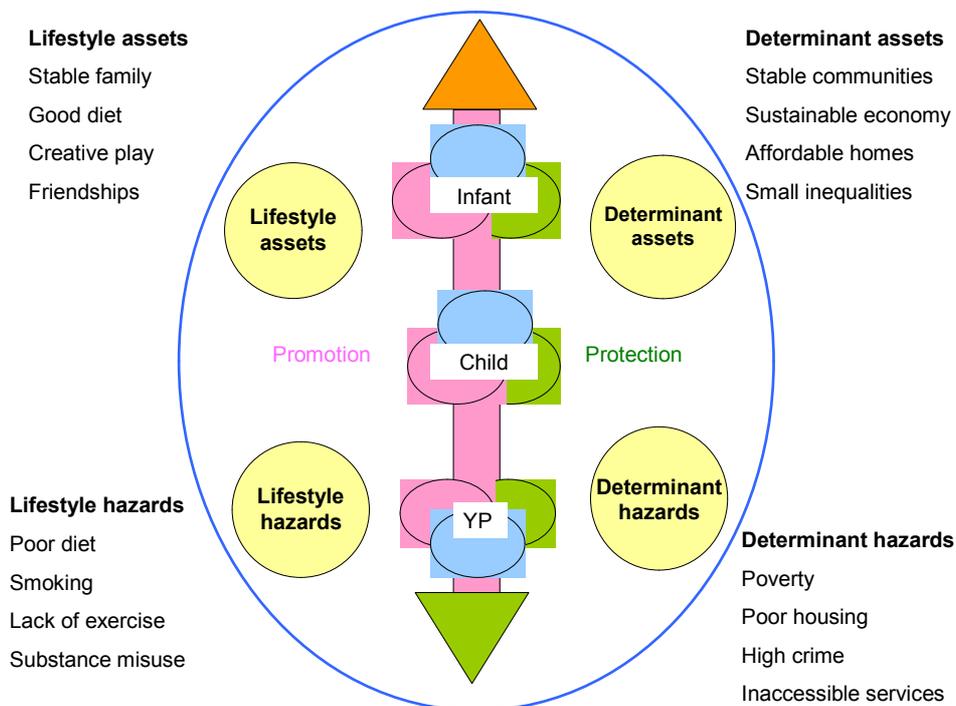


Figure 3: the central vertical line represents the life of a child from infancy to young person (YP). On the left-hand side are the lifestyle assets and hazards, on the right side assets and hazards relating to determinants.

Expanding the simple model

The intention is to create a comprehensive framework that has universal applicability, but that risks unnecessary complexity. The framework proposed is an aide memoir rather than a system where “where every cell in the matrix must be completed”.

In terms of implementation, local communities will have differing priorities and various stages of development and hence will need to consider to content of the comprehensive framework when considering the next steps for local implementation.

Age of development.

The dominant agents which have influence are generally very different in the antenatal period compared to those acting during school age or the period of young adulthood. The model therefore may need to be expanded to include different ages or stages of development. The obvious choices would be:

- o Antenatal/perinatal
- o Preschool children
- o School-aged
- o Young person

The social and physical environment

Social environment. Children do not live in isolation from their families, who have a huge influence on their health and well-being. Parental mental health, domestic violence, learning difficulties and substance misuse have a huge influence on the outcomes for individual children and therefore interventions orientated to parents, siblings and extended family members must be included in a more comprehensive model.

- o Parents
- o Siblings
- o Extended family

Physical environment. The "physical" environment includes all the non-social (people) elements that have an influence on health and illness and would include physical resources such as heating, security, access to play space, school, fiscal policy etc. Conceptually these may be organised around the themes of:

- o Home
- o Neighbourhood
- o Society

Interventions to promote and protect

Interventions (protection and promotion) can be divided by who is predominantly responsible

- **Lifestyles** - actions individuals can take or have control over.
- **Determinants** - generally outside the control of the individual, actions that communities/society can make
- **Health service** /Public Health- interventions that are the responsibility of the public/health service.

Each can be divided into

Promotion - the process of increasing exposure to assets that have positive health effects.

Protection - the process of decreasing exposure to hazards that have a negative health effects.

Each of these contributory factors should ideally be included in a comprehensive model.

Comprehensive framework

Topic: Generic Application

This initial section is “setting the scene” for the life course policy framework - the intention is to inform the reader of the key issues that need to be considered when considering interventions.

Why is this topic important?

- How big is the problem? (Incidence and prevalence).
- What is the impact on children and young people? (Morbidity and mortality, disability, quality of life, disadvantage etc)
- What is the burden on public services (Health, Education and Social Care) and society more widely?

What do we want to achieve?

- Improved outcomes (health, well-being, quality of life).
- Reduced inequalities (access and outcomes).
- Reduced burden on services.
- Better use of resources.
- Sustainability.

What causes this problem?

- What factors (positive and negative) influence this problem (aetiology relating to lifestyles and determinants)
- Which factors can we change?’ (modifiable factors, amenable factors)

What can we do about it?

- Which factors can be influenced by public health/health service programmes.
- How effective are interventions?
- When are the interventions most effective?
- How many people may benefit?
- What are the costs?

What is currently being done locally?

- What programmes are running?
- How effective are they?
- Are they offering ‘value for money’?
- What are stakeholder concerns?

What should happen now?

- Priority setting given resource constraints.
- Action plan. (locally, nationally)
- Evaluation and learning.

The life course policy tables

The tables, as before, are intended to provide structure and act as an aide memoir which can be used to outline all the interventions that may be possible, to map those that are currently being implemented and identify any gaps or shortfalls. If resources attached to interventions can be identified, questions such as "are resources being invested to best effect?" can be asked, or, how can we increase overall value?

It is suggested that a shorthand title for the intervention is inserted into the cells within the table, and the number of the cell is then used to further describe and reference the intervention in the following tables under the heading evidence base and references.

		Environment		
		Lifestyles	Determinants	Services
Host	Child and family			
	Community			
	Society			

Initially this simple table (above) may be used to "scope" the topic, but if there are a lot of potential interventions the following tables may be more helpful to categorise and clarify which interventions may act synergistically together when planning public health programmes. Insert into relevant cell a very short descriptor of the intervention e.g. "improve diet" this can then be expanded in the following *table 4* 'evidence based interventions' by cross referencing the cell numbers. References to the literature should be included in *table 5*.

		Lifestyles		Determinants		Health Services	
		Promotion	Protection	Promotion	Protection	Promotion	Protection
Child	Antenatal	1	2	3	4	5	6
	Preschool	7	8	9	10	11	12
	School aged	13	14	15	16	17	18
	Young person	19	20	21	22	23	24

Table 1: interventions relating to the child

		Lifestyles		Determinants		Services	
		Promotion	Protection	Promotion	Protection	Promotion	Protection
Family	Parents	25	26	27	28	29	30
	Siblings	31	32	33	34	35	36
	Extended	37	38	39	40	41	42

Table 2: interventions relating to the family

		Lifestyles		Determinants		Services	
		Promotion	Protection	Promotion	Protection	Promotion	Protection
Community	Home	43	44	45	46	47	48

Community	Neighborhood	49	50	51	52	53	54
	Society	55	56	57	58	59	60

Table 3: interventions relating to communities

Evidence base interventions

More detail should be included e.g. 'improve diet' could be expanded to 'increase fruit and vegetable intake', 'reduce saturated fats', 'increase vitamin D intake'

Cell number	Interventions
1	
2	

Table 4: evidence base (the cell numbers relate to tables 1-3)

References

Cell number	Intervention
1	
2	

Table 5: references relating to interventions listed in table 4

Summary

This policy framework for interventions based on a life course pathway is a generic approach for organising the evidence in a systematic way to aid decision-making when considering the options for local priorities.

The intention is to produce a series of policy frameworks, particularly relevant for children and young people in the UK, to support BACAPH members in their day-to-day work.

Policy frameworks as they develop will be signposted on the BACAPH website www.bacaph.org.uk.

If you are interested in using this framework and contributing to policy development please contact BACAPH info@bacaph.org.uk