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## Editorial

# The Influence of Environment on Childhealth

It is known that the health of human is profoundly affected by the changes in the environment. In fact, to study how the natural or built environment affects health is a specific branch of public health subspecialty known as "environmental health". According to the WHO definition, "environmental health addresses all the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviours. It encompasses the assessment and control of those environmental factors that can potentially affect health".

Some of the articles in this issue of our journal are reflecting such point of view. Lou et al postulated that the change in ambient temperature might affect the occurrence of acute appendicitis in children and they showed that the incidence peaked in the summer month. It is an association study so the cause and consequence issue remains to be resolved. Based on this observation, one may expect a higher incidence of acute appendicitis in tropical countries throughout the year and no seasonal variation pattern should exist. Furthermore, with the effect of global warming, we may expect an increase in the incidence of appendicitis in regions under temperate climate. However, it appears to us that we are seeing less appendicitis nowadays locally than we used to encountered 2 decades ago. Can we explain this trend with the ambient temperature theory? One need to explore our local situation before definite conclusion can be drawn. Other confounding variables such as environmental sanitation, personal hygiene or individual diet pattern may also affect this observation and have to be considered in the future study design.

Another article showed a strikingly high incidence of vitamin D deficiency among Korean teenagers. Again, seasonal variation pattern is noted and this time, the risk factor is on spring and winter season when sunshine may be less abundant and the exposure to sun light is further compromised by the heavy clothing in winter month. However, a hidden factor may need to be verified. In recent years, fair skin is considered as part of the "beauty" standard and young girls are consciously shielding themselves from the sunlight to avoid suntan. In addition, youngsters have been living in a more sedentary life style for most entertainments nowadays involves minimal physical exertion and are mainly taking place indoor. Outdoor sport activities are not as popular as it used to be especially among the female gender. This may all contribute to the decrease exposure to sunlight and eventually leading to vitamin D deficiency. It will be interesting to study the prevalence of vitamin D deficiency in our locality for even with similar mind set and life style among our youngsters, we have much shorter winter months and more sunshine throughout the year.

The article on the immunogenicity of the heptavalent pneumococcal vaccine among premature children concluded that even among premature infants, the conjugated pneumococcal vaccine could induce sufficient antibody response to the targeted serotypes of pneumococcus. But when we looked carefully at the response pattern to different serotypes, there are significant variations suggesting immune response bias towards some particular serotypes. In the current situation of Hong Kong, we have shifted from heptavalent to 10-valent then 13-valent within a very short period of time. That is because we noticed a significant serotype shift towards the non-covered serotypes. Unfortunately, while we are getting rid of some pneumococcal serotypes, a surge of other uncovered invasive serotypes was noted. It is as if we are modifying the ecology of pneumococcus by suppressive some serotypes but allowing other serotypes to surface. Another finding is that one of the serotype (serotype 3) has a thick mucous coating that can resist the action of antibody. Despite the fact that it is supposed to be covered by the 13-valent pneumococcal vaccine, the traditional standard of 0.35 ug/ml antibody response protective level may not be adequate in this situation. So while we aim to change the microenvironment to prevent pneumococcal infection, some pathogens may evade from our strategy by mounting unique defending mechanisms. We know now that each of us may harbor an individual pattern of microbial colonies within our body. There is a symbiosis between us and our microbial flora when we stay healthy, such pattern drastically changes when we get sick. How to manipulate the balance between us and our intimate microbial flora will

be another interesting topic for future research.

The last original article may appear to have no correlation with the influence of environment to the host. However, the relatively high incidence of asymptomatic gallstone among Iranian children with no obvious triggering factors deserves further exploration. What may contribute to the formation of gall stone among these children? Locally, we noticed our patients with hereditary spherocytosis or thalassaemia intermedia may develop pigmented gall stone early in life due to chronic spontaneous haemolysis and they are often asymptomatic. However, the diagnosis of these diseases should not be difficult clinically and therefore is unlikely to be missed. Cholestasis in children on long term TPN can also be easily identified. Whether there is any environmental factors such as diet that may induce gall stone formation in this cohort of Iranian children needs to be further looked into.

From acute appendicitis, asymptomatic gall stone to vitamin D deficiency, and also changes in the prevalence of pneumococcal infection during the post-vaccination era, they all have close relationship with the environment. When we consider the health care policy for children, the environmental health prospective has to be put into the equation. After all, investment to safeguard the health of a growing child by providing effective preventive measures will be much more cost-effective than offering treatments when the diseases already set in during our adult life.

**GCF Chan**  
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