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The Well-Baby Clinic and Pillars of Preventive Child Care

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ABSTRACT

This article targets all who are committed to the care of young children. Commencing with the clinical history and physical examination, the fundamentals of preventive child health offered in a well-baby clinic are highlighted. In this important clinic, the monitoring of core health components such as nutrition, growth, development and vaccination as pillars of preventive health services augments the health status of both a community and a nation. It is here that much needed information on infant nutrition in the first eighteen months of life, exclusive breastfeeding and complementary feeding, early growth and development, together with the provision of immunisation, is delivered. Health care provision is further strengthened by integrating knowledge with progressive dynamics of health services in line with the government's health objectives such that communities are empowered with crucial information on preventive health. Significance to local scenarios, pertinent to parents and of importance to preventive health, with community relevance, is touched upon. In this way, it may be opportune to attempt innovative parental counsel on contextually related issues linked to the everyday care of children, whenever necessary. Of interest and given the focus of this journal, specific health concerns apropos to a military scenario, may well be further deliberated on and developed.

Introduction

Globally, health surveillance services of preventive health of the mother and child contribute to the sustained and improved health of all nations. In Malaysia, the provision of child health care in government health clinics is pivotal and includes the care of the newborn up to that of children of 6 years of age ("Bahagian Pembangunan Kesihatan Keluarga - Pengenalan", 2014). This is provided in the Health Clinic (*Klinik Kesihatan*), Maternal and Child Health Clinic (*Klinik Kesihatan Ibu dan Anak*) and the Rural Clinic (*Klinik Desa*). Once a child attends school, the health surveillance is taken over by School Health Services (*Perkhidmatan Kesihatan Sekolah*) ("Bahagian Pembangunan Kesihatan Keluarga - Pengenalan", 2014); for continuity and convenience. This article emphasises on preventive health care in the first 18 months of life in the health clinics or the well-baby clinic.

Nutrition is crucial to holistic health and must be adequate for growth and maintenance where essential early nutrition is provided by the mother through breastfeeding (WHO, 2013). Advice to parents

on growth provides cost-effective public health measures that nurture health care in a community. Nutrition in the first 18 months includes exclusive breastfeeding in the first 6 months and complementary feeding, or the addition of solids or liquids in addition to breast milk or infant formula to the infant's diet at 6 months of life (Fewtrell et al., 2017). In establishing prime infant nutrition through breastfeeding, early skin-to-skin contact is important (Moore et al., 2012). Skin-to-skin contact is a routine practice in all baby friendly hospitals and both parents should ideally take part in this soon after delivery (Moore et al., 2012; Chen et al., 2017). Successful breastfeeding is advantageous for protection against infections and allergies (Oddy, 2017). It provides optimal growth, preventing malnutrition and evidence supports its protection against obesity (Kliegman et al., 2016). There are enduring benefits against diseases such as autoimmunity (Jackson, 2006), and possibly, a spectrum of ways in which breastfeeding protects from some cancers in both the mother as well as in the child (Kutty 2016, Danforth et al., 2007). Complementary feeding, in addition to breast milk in the infant's diet is important because beyond 6 months of age, breast milk alone cannot provide sufficient nutrients for the child to continue to grow optimally (Fewtrell et al., 2017) Macronutrients such as carbohydrates, proteins and fats as well as micronutrients such as vitamins and minerals cannot be fully provided by breast milk alone beyond this age (Kliegman et al., 2016). Weaning foods at 6 months are necessary for the continued growth and development of the child. (Fewtrell et al., 2017, Alvisi et al., 2015).

Weight, a key health indicator in childhood is dependent on nutrition as well as hormones and psychological factors (Shamir et al., 2013), impacted by gender. Boys and girls have different growth charts because their rates of growth are different ("Growth Charts – WHO Child Growth Standards", 2010). Monitoring growth includes follow up in weight, in length, a measurement before the infant can stand up, in height, when the infant is at an age where he or she is able to stand up, and head circumference which is measured for up to 2 years of age, the time of most rapid head growth.

Breastfed and formula fed children also tend to grow differently (Ziegler, 2006). Holistic health means physical, mental and emotional well-being. A child's interaction with the surrounding, and development, is yet another noteworthy facet of physical, mental and psychosocial health profile. Holistic health is a summation of many crucial factors including good nutrition ensuring both physical and mental health, proper development and social interactions.

Developmental milestones define achievements in 4 spheres (Kliegman et al., 2016; Kutty and Krishnaswamy, 2016). These include gross motor development, fine motor development, hearing, speech, language and social as well as cognitive domains. Development depends on a dynamic interaction of internal and external factors. Physical factors, environmental input and psychosocial well-being impact the individual development of children. Parental stimulation and interaction surely play a central role in a child's overall developmental achievements.

There are ranges of normal attainments, termed milestones, with every child uniquely displaying his or her own rate and pace of such achievements. Monitoring and recording these milestones at every well-baby clinic visit provide opportunity for early detection of deviation from normal ranges, followed by their vigorous investigation, when needed. If developmental limits are exceeded, referred to as "red flags" (Kliegman et al., 2016), it alerts the health care provider for a more in-depth history and physical examination. Early intervention may take myriad useful forms such as professional advice, closer follow-up or even, where necessary, referrals for expert specialist opinion for halting ongoing disease or for the prevention of complications and subsequent care.

Prevention in the well-baby clinic certainly does not stop there. Needless to emphasise, the administration of vaccines is an obligatory step towards universal primary prevention of diseases. The interplay of nutrition to immunity, and the impact of immunity on vaccine responses to fight diseases and the health consequences of immunity, naturally acquired from diseases, impacting both nutrition and growth are correlated and are directly or indirectly monitored in the well-baby clinic. Thus, the monitoring of the tetrad of nutrition, growth, development and immunisation as essential components of a well-baby clinic provides a platform to ensure health for all.

In the well-baby clinic, baseline data of these 4 areas is plotted on growth charts and noted in the child's individual health record and is multi-purpose for health documentation, for clinic and parental record, and for referral data, should it be deemed necessary.

Good Nutrition is Pivotal for Health

Exclusive breastfeeding as prime nutrition in the first 6 months is now well established and supported. In providing comprehensive information to parents, the doctor or health worker must integrate knowledge on nutrition with facts from basic sciences replete with social and psychological awareness.

Successful breastfeeding commences with skin–to–skin contact integrating both physically and emotionally, the parent-child bond. This seemingly simple act keeps the baby warm and maintains ideal body temperatures. It modulates the baby's breathing rate and facilitates good oxygenation, optimising blood pressures and regularising heartbeat. Transferring beneficial skin bacteria from the mother to the baby, initiates infection protection. The gastrointestinal tract is nurtured and ready for early feeds. It encourages progressive in utero development of the baby's brain by establishing both physical and emotional mother to child bonds. Skin–to–skin contact allows for better latching and more successful breastfeeding (Moore et al., 2012). The father optimally also takes part in this priceless parental integration soon after birth (Chen et al., 2017). Breastfeeding may be done by the cross over, cradle, clutch or football hold or in the reclining position (Kutty and Krishnaswamy, 2016; Hor et al., 2013) for optimum comfort and for establishing vital physiological bonds between mother and child; initiated within an hour of birth, done exclusively for 6 months and given on demand for up to 2 years of age, much benefit is ensured for the nursling ("Breastfeeding", 2015; "Infant and young child feeding", 2018).

Infection protection by breastfeeding is impactful. Breast milk transfers secretory immunoglobulin A (sIgA) to the baby with numerous cells and cytokines (Kutty and Mohamed, 2010; Kutty and Krishnaswamy, 2016). The breastfeeding mother's gut is linked to her breasts by the "entero mammary axis" (Fig. 1).

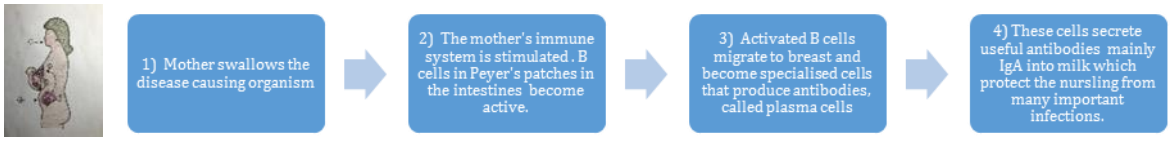


Fig. 1: Gut-breast integration: The entero-mammary axis immunologically links mother to nursling: the mother's immune exposures benefit the nursling

This will enable the mother's gut exposures to pass on similar protection to her breastfeeding infant (Cantini and Arnaldo, 2008). In the early postpartum, colostrum, rich in sIgA is calorie dense. Transitional or intermediate volume of milk is greater than in colostrum. Its immunoglobulin content is less than that of colostrum. Breastfeeding is dynamic because mature milk varies between the individual breastfeeding mothers at different times and between one breastfeeding mother and another at various phases of lactation, adapting to the baby's changing nutritional needs (Kliegman et al., 2016; Kutty and Krishnaswamy, 2016).

Foremilk is produced during the initial phase of feeding and is more dilute than hindmilk and contains less fat. Hindmilk is produced in the later part of feeding. It contains more fat, contributing to nursling satiety. Hence, the mother must empty both breasts completely during feeding so that the infant gets both water and nutrients. Most medications are safe in the nursing mother and information on the few medicines to be avoided are available in standard textbooks (Kliegman et al., 2016; Kutty and Krishnaswamy, 2016). In Malaysia, some communities may believe that decoction of roots, fruits or flowers may be consumed by the breastfeeding mother to increase milk supply or flow (Samy et al., 2009). In many cultures, the traditionally accepted wisdom of increasing the quantity of breast milk by means of some herbal galactagogues such as fenugreek, anise, nettle, and fennel is passed down from generation to generation (Budzynska et al., 2012). However, notably, much further research is needed to assess the safety of herbs used during lactation (Budzynska et al., 2012).

There are behavioural and developmental signals indicating the infant's alacrity to start a solid diet other than milk. Developmental pointers to the readiness for complementary feeding include the ability to sit without support, good neck control, chewing and munching, appropriate tongue movements and the child's actions of exploring hands and toys by bringing to mouth (Alvisi et al., 2015). The infant also displays an interest in foods eaten by family members and a keenness to eat during family meal times

(Alvisi et al., 2015). Solid foods are foods that cannot be drunk, and these foods are obtained from the food industry or prepared by the family (Duong et al., 2005). The introduction of nutritionally sufficient and safe complementary foods, which constitute foods other than breast milk, infant formula or follow-on formula given to infants, consisting of liquids, semi-liquids and solids (WHO, 2008), must be of nutritive value and is done after 6 months (Kliegman et al., 2016). Beyond 6 months, breast milk per se will not provide complete nutrition for optimal growth and development.

Responsive feeding is an interactive process between parent or caregiver and child (Bentley et al., 2011). The baby exhibits hunger by various verbal and nonverbal cues and the mother or caregiver responds to these cues appropriately and predictably. Thus, the feeding process is interactive and the child exhibits behaviours that meaningfully modulate feeding. Needless to emphasise, healthy food enjoyed in a milieu conducive to the child's comfort will make this a pleasurable experience (Black and Aboud, 2011).

It is recommended that one should be sensitive to the infant's hunger and satiety signals. Feeding just to comfort the child or as a reward should be avoided (Fewtrell et al., 2017). Offer foods of different flavours and textures to infants (Fewtrell et al., 2017). Face the infant, looking eye to eye and enjoy feeding time (Fernando and Potock, 2015). Never scrape the top of the spoon on baby's upper gum line or roof of mouth. Choose a spoon that is small and flat to fit the infant's mouth (Fernando and Potock, 2015).

Even and along with complementary foods, breastfeeding must continue (Fewtrell et al., 2017). Noteworthy is that whole cow's milk is inadvisable before 12 months (Fewtrell et al., 2017). Iron rich foods must be given to all infants (Fewtrell et al., 2017). Where there is a need for special diets such as vegan diets, medical practitioners must be consulted for dietary supplementation and follow up advice (Fewtrell et al., 2017), to prevent nutritional deficiencies.

At 6 months, it is advisable to start with small amounts of foods, then gradually increase both frequency and variety. WHO advocates an average of 2–3 meals per day for infants 6–8 months, 3–4 meals per day when infants reach 9–23 months of age and 1–2 extra snacks as required.
("Nutrition: Complementary feeding", 2018).

Empowering the parents with knowledge of the child's physiological stages of organ development related to the time, choice and nature of weaning foods is essential. The young infant's intestinal barrier is not fully developed. Many organs such as the kidneys and the liver are neither fully developed. For these reasons, complementary foods should be introduced beyond 6 months of age and not before. Blended or pureed foods that are easily digestible are recommended without adding sugar or salt; sugar-sweetened beverages are not advised (Fewtrell et al., 2017).

There is a recommended daily intake of macronutrients and micronutrients (Alvisi et al., 2015), reinforcing that both the quantity and quality of foods introduced to the infant are important. Proteins are important and about 250ml of milk provide about 30-40% of the daily proteins required (Alvisi et al., 2015). Vitamin D is given until a year of age in most countries. Salt is not added to foods, sweet snacks must be avoided, and vegetable oils are preferred to animal oils. Fish should be consumed at least twice a week. Fruits and vegetables must be served 3 times a day (Alvisi et al., 2015). At 6 to 8 months of age, foods of smooth consistency are given; pureed and blended foods are offered at 7-9 months; finely chopped foods and finger foods may be introduced as teeth develop and when a year or more, the child partakes in the family meal (Barnard, 2017).

Worldwide, it is recommended that mothers, family members, health professionals and the community must be educated on the importance of breastfeeding and the appropriate introduction of solid foods (Inoue and Binns, 2014).

In the Asia Pacific region, rice and rice products are commonly used as the first foods. Without fortification they provide insufficient quantities of micronutrients (Inoue and Binns, 2014). A balanced diet replete with colourful fruits and vegetables is advised to ensure that all nutrients are provided. Blended meat, fish and liver are rich sources of Vitamin B1 while eggs, fortified cereals and green vegetables contain plenty of Vitamin B2. Fish, meat, legumes and green vegetables in the diet avert Vitamin B3 deficiencies. Liver, banana, rice and potatoes contain Vitamin B6. Vitamin B5 deficiencies are prevented by adding blended beef, soybeans or mushroom into the diet. Folic acid and Vitamin C deficits

are unlikely to occur if a healthy child consumes beans, leafy vegetables, citrus fruits, papaya, tomatoes, cauliflower and melons in the diet. Vitamin B12 is found in poultry, egg yolk, and fortified cereals. (Kliegman et al., 2016).

There are some general precautions in complementary feeding. If at all complementary foods should be stored, it must be kept in a refrigerator at or below 4°C (40°F) or in a freezer at -18°C (0°F) ("Are You Storing Food Safely?", 2018). Some foods may be reheated until piping hot and allowed to cool to a temperature suitable for the baby. Foods should not be reheated more than once. After the child's first birthday, eggs may be given ensuring that both the white and the yolk are cooked until firm to avoid the risk of contamination, because *Salmonella* food poisoning and others can occur (Barnard, 2017).

Diarrhoeas, when recurrent, can be important causes of growth failure or retardation leading to acute complications and more chronic disruption of both growth and development in children. From 6 months, oat and wheat-based cereal may be used.

Avoid addition of sugar and salt to foods (Barnard, 2017). Added sugars make a diet energy dense but of poor nutrient value, which escalate risk of developing dental caries, obesity, cardiovascular disease, hypertension and could predispose to obesity-associated cancers (Vos et al., 2017).

Adverse food reactions refer to untoward reactions when food or additives are ingested. A thorough clinical history is needed to determine possible food allergies. In the well-baby clinic, the family history about a spectrum of allergies or allergy related conditions like bronchial asthma, a multifactorial disease with allergic etiology and inheritance could be efficiently obtained. Common allergenic foods include cow's milk, eggs, peanuts, tree nuts, soy, sesame, wheat, some types of fish and in general, seafood (Kliegman et al., 2016; Lee, 2017). Allergic reactions are typically divided into food intolerances and allergies. The skin, gastrointestinal tract, respiratory tract and cardiovascular system can be involved (Kliegman et al., 2016). These issues can be discussed in the well–baby clinic, to avail the opportunity to provide specific advice for individual assessment to infants with food allergies. A few children may have specific food intolerances and allergies that would require special diets. For example, in celiac disease, gluten, a protein found in wheat, barley and rye must not be given (McGough and Cummings, 2005). Foods containing these substances must be eliminated from the diet.

The avoidance of choking is another domain of counsel in the well-baby clinic. Due to the risk of choking, foods such as whole nuts, large seeds and whole grapes should not be given before the age of 5 years (Barnard, 2017).

Infections can be transmitted to children if food is not cooked or improperly stored. Hygienic food preparation and advice is a must. Certain foods are more easily contaminated by bacteria and their toxins. Due to the risk of contamination by *Clostridium botulinum* in honey, babies under 12 months should not consume honey (Barnard, 2017). Botulism is a dangerous disease.

Important are the dietary history together with the social history and the history of pertinent exposures taken in the well-baby clinic as tools to guide early diagnosis. A spectrum of factors including serious or recurrent infections can affect the growth of the child and unhygienic practices or contamination of the diet potentially contribute to this.

In the context of military exposures, human conflict may trigger epidemics of infectious diseases leading to macronutrient and micronutrient deficiencies. The exposure to substances such as lead may interfere with growth, its toxicity occurring from exposure to paint, lead cooking pots, or to noxious substances in the environment (Riva et al., 2012), the dietary consequences of these exposures may impact growth, and cause enduring disability to development, and suspicion of these exposures must prompt detailed diagnosis, detection and management.

The Monitoring of Growth is a Fundamental Requisite in Child Care

There are accepted normal growth patterns for boys and girls. The references are available in standard texts (Kliegman et al., 2016). Growth is influenced by the integration of many factors (Fig. 2).

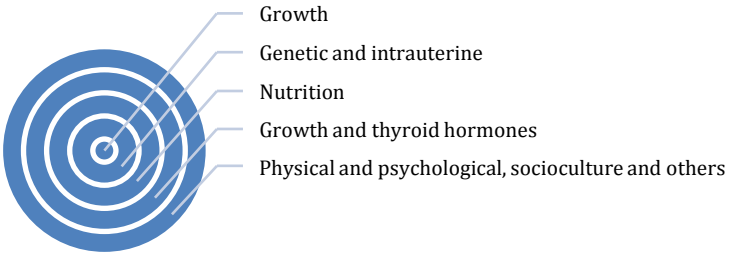


Fig. 2: The growth of the young child is impacted by many integrated factors

These factors influence the ultimate growth potential achieved by a child. Factors affecting growth include intrauterine influences, nutrition, genetics, hormones, physical and psychological input, environmental, socio-economic and cultural factors. Nevertheless, despite accepted variations in growth, all children are expected to follow a standard growth trend based on gender and age. These trends are plotted and monitored in the growth percentile charts.

Abnormal patterns of growth may occur if factors that influence growth are not optimal. This occurs in malnutrition, endocrine deficiencies such as hypothyroidism, in psychosocial disorders such as emotional neglect, deprivation or due to a combination of these factors.

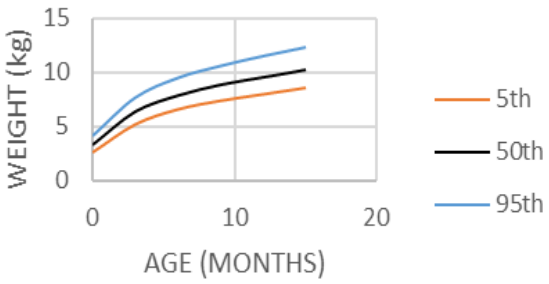


Fig. 3: Graphic representation of a sketched growth percentile chart.

Information on normal growth charts are useful (Fig. 3). Normal growth charts have parallel lines which are called percentiles and standard deviations from these percentiles must draw attention to the child's growth pattern. Weight is measured and plotted according to gender and age and compared to length or height. Both the breastfed and formula fed infant have similar rates of growth in the first 2 months, but from then on till 12 months formula fed infants gain weight and length more rapidly than breastfed infants (Ziegler, 2006). In children, rapid early growth in the first year of life explains the initial steep slope in growth charts (Fig. 4). A child doubles the birth weight by about 4-5 months, triples the birth weight by 12 months and quadruples the weight by 2 years. In the initial 4-5 months of life there are no significant differences in the fat tissue or adiposity of breastfed and formula fed infants, but during the later part of the first year of life there is evidence to suggest that breastfed infants are leaner than formula fed infants. The protein intake of breastfed infants decreases with age, but that of the formula fed infant tends to exceed requirements after the first 1-2 months of life (Ziegler, 2006).

Growth charts are plotted in the well-baby clinic and trends in growth give useful information of the child's overall growth. When normal weight for age occurs, growth increases parallel to the standard percentiles. Failure to thrive is growth faltering when weight is not parallel to the growth in the percentile chart but shows downward trends, decreasing by more than 2 major percentiles (Kliegman et al., 2016). Using percentile charts that compare body mass index (BMI) to age, in children more than 2 years old, a BMI equal to or more than the 95th percentile for age, denotes obesity (Kliegman et al., 2016). The BMI is the child's weight divided by the square of the height (kg/m^2) (Fig. 4).

Head circumference is plotted until two years of age because the growth of a child's brain is most rapid during this time. In the first two years, the anterior fontanelle allows for this growth, closing by 18-24 months. The smaller triangular posterior fontanelle closes by 3 months.

The interpretation of a child's growth is equally important. More than a single reading is usually necessary to confirm any noted abnormality. Comparison with previous plots of growth is a must. It is good practice for all mothers to actively participate in monitoring the weight of their babies and to seek medical advice if growth does not follow a percentile but plateaus, drops or crosses percentiles.

In unique scenarios, as in the military context, a child who crosses percentiles of growth may require more precise history of direct or indirect exposures to possible substances or environments such as to toxic chemicals and noxious gases. Could intrauterine exposures to such agents be relevant to the history taking in this setting? It is necessary to emphasise that special socio-demographics mandate out-of-the-box thinking and thoughtful clinical clerking which may be informative before expert referrals are made.

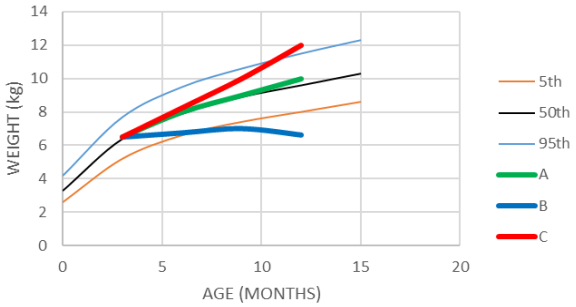


Fig. 4: Sketched comparisons: The weight for age growth chart is sketched by the authors, based on standards for normal growth, referred to and information adapted from the understanding of "Growth Charts – WHO Child Growth Standards", 2010.

The sketched comparisons of A, B and C are drawn by the authors to illustrate 3 patterns of growth.

- **A. Illustrates, normal weight for age where growth increases parallel to the standard percentiles. Additionally, percentile charts that compare the weights of children to the heights of children are also meaningfully used.**
- **B. Illustrates failure to thrive when the child's weight is not parallel to the percentiles but shows a significant decreasing trend. In failure to thrive (FTT), the weight is less than the 5th percentile. In FTT, weight for height is observed to decrease by more than 2 major percentiles.**
- **C. Excessive weight gain is noted with upward crossing of the weight percentiles. Using percentile charts that compare body mass index (BMI) for age, in children more than 2 years old, a BMI equal to or more than the 95th percentile for age, denotes obesity. (Kliegman et al., 2016).**

The Child's World of Development and Integration to the Environment

For convenience, development of children is divided into 4 interlapping spheres (Kliegman et al., 2016; Kutty and Krishnaswamy, 2016). Different parts of the brain are influenced by internal and external factors and these interact so that a child not only grows physically but also develops mentally. Integrating developmental milestones with physiological changes in children, their activities of daily living and early responses to the environment is fascinating. There are ranges for the normal variations to all developmental milestones and this knowledge must reassure parents that each child will take his or her own pace for early developmental achievements and comparison with the development of other children need not be a source of anxiety. However, deviations in the achievement of milestones beyond this accepted range, or 'red flags' (Kliegman et al., 2016), require prompt investigation.

Child development has orderly progression, from head to foot and from the centre of the body to the peripheral regions. A child learns to sit before standing and stands before walking. In this way, at

every stage and within accepted periods, a child attains a set of expected milestones in normal development over a predictable time frame.

Attention to safety precautions pertaining to a child's development is required because their rapid development and curious impulsivity can predispose to injuries. Precautionary steps that parents and caretakers must take when a child achieves some level of physical activity and abilities are good preventive practice. For example, a child who starts learning to walk up and down stairs may initially do so unsteadily. Parents and caregivers must ensure that the child is not left unattended to and that the living environment has child safety features.

For parents, the appreciation of an infant's development in a predictable manner (Kliegman et al., 2016; Hor et al., 2013) is of importance both to enjoy this special period and to avoid undue anxiety, especially so in first time, young parents. Parenting is a unique lifetime's experience and special, memorable events shared between parents and their children, can differ considerably, contributed to by varying cultural practices in different parts of the world - such as some exceptional parenting experiences enjoyed in Asia (Hor et al., 2013).

Additionally in special circumstances, unconventional or novel thinking and questioning in clinical clerking may prove to be invaluably informative in the well-baby clinic.

i. Gross Motor Development

Gross motor development (Kliegman et al., 2016) at 2 weeks of age enables the neonate to move the head from side to side. When lying with face downwards, the knees are kept under the abdomen. The infant begins to be aware of the new world. At 6 weeks, when the infant is left to lie with face down, he or she cannot lift the head above the couch. At this time, there is a chance of suffocation if left unattended to. Furthermore, at 6-8 weeks, a safety precaution may be that soft toys, pillows and blankets should be kept away as they increase the risk of sudden or unexpected death in infants due to suffocation. Keeping a clear cot is hence good advice for all young infants (Hor et al., 2013; "Raising Children Network", 2018).

By 3-4 months, when gently pulled to sit there is minimal to no lagging behind of the head, and by 5 months there is no head lag at all observed, and the back is straight. When lying with face up, the infant tends to play with the feet. The neck muscles have strengthened, and the infant is almost ready to take solid feeds. A precaution here is that if a bouncer is used, it must be put on the floor when the baby is in it. An active baby might cause the bouncer to move and fall off if placed on a table ("Raising Children Network", 2018).

The head is lifted in anticipation when the 6 month old is pulled to sit. The infant is now able to sit alone with some support. He or she bears the weight of the body on the legs. When put to lie with face down, the infant supports the weight of the body with the hands and lifts much of the body off the couch with ability to roll from face down to face up.

There is postural equilibrium responses that help prevent falls as the infant learns to sit and stand. Maintaining balance when the baby is sitting is also helped by the development of equilibrium reflexes which appear when the primitive reflexes the baby is born with, gradually disappear.

At about 7 months, the infant can turn the body with the tummy on the ground. Termed "pivoting", arms and legs are used for this curious action. At 7 months the infant sits alone with hands on the couch for support. Now the playful infant can roll from facing upwards to facing downwards, predisposing the active infant to accident falls off the cot. One must be attentive and baby cots must be kept low (Hor et al., 2013; "Raising Children Network", 2018).

At 9 months the infant can pull to stand and cruise. He or she can pull self to sit. Walker injuries can occur at this time (9 – 12 months). Overall it is advisable to keep the house safe and child friendly at this crucial time - storing away wires, removing pails of water from bathrooms and using other relevant safety measures (Hor et al., 2013). By now the child has learnt to crawl. One may observe normal variations in crawling. A hand and knee crawler use hands and knees to move around. A bear crawler uses palms and soles for support and moves forward like a bear. A bottom shuffler drags the buttocks on the ground

using legs to propel forward. A combat or commando crawler moves with elbows and upper chest (Kliegman et al., 2016) as a soldier does under a wire barricade.

With increasing strength of the legs, the 12 month old can walk with one hand held and can stand alone. He or she can stoop and stand, utilising the whole range of basic mobility by getting from lying to sitting and crawling to standing. At 13 months, the infant can walk without help and can creep up stairs. He or she can stoop for toys and stand up without support. Attempting to create a child friendly home environment such as by installing a small gate at the staircase is a useful safety measure (Hor et al., 2013). By 15 months the infant who can walk steadily now can even walk backwards. The agile infant moves to music. The newly acquired ability to walk backwards may excite the young infant who is oblivious of dangers. At 18 months the infant who walks steadily can kick a ball. He or she can run, get up and down stairs holding on to rails or with one hand held, amused by activities such as pulling toys or carrying a doll. At this time, there is ability to throw a ball overhead without falling. Stow away small furniture, keeping a watchful eye on the infant. Child safety non-slippery mats in the bathroom help prevent falls at this time (Hor et al., 2013).

ii. Fine Motor Development

Fine motor development (Kliegman et al., 2016) uses smaller muscles of the fingers and toes, integrating with the development of vision and with functions of other areas of the brain. For example, drawing is learnt through vision, coordination and experience. Small muscles of the hand and of the fingers become defter as the infant grows older. Finger to thumb apposition by the valuable pincer movement is an example of this. There is also functional integration of many developmental milestones. For example, the infant sees the object of interest, reaches out for it with hands and delightfully captures it, taking it towards the mouth. The sequence of events leading to this successful action involves proper vision, arm strength to lift against gravity and appreciation of sensation in the hands, enabling the infant to touch and feel the object of interest. Much strength and normal coordination of movement is also ensured by balanced nutrition.

At around 2 weeks, the infant lies with closed palms. The infant may be swaddled but it is important to often allow freedom of movement. High temperatures may result from excessive swaddling or swaddling too tightly (Hor et al., 2013). The very young infant does not have the ability to optimally control body temperatures; excessive loose clothing should not cover the face and nose, to avoid suffocation (Hor et al., 2013).

At 6 weeks is when the infant looks for objects beyond the central area of vision and follows it past the midline. The palms of the hands are kept closed. At 2 months, the infant focuses and follows up to a right angle. At 3 months, the infant is aware of his or her hands and is said to have hand regard. At this time, an occasional squint need not cause unnecessary parental anxiety because there still is some immaturity of control of eye movements.

It is delightful to watch a 4 month old first grasp an object within reach. The infant moves his or her head and eyes in all directions. No squint or strabismus should be observed by this time (Kliegman et al., 2016).

Self-awareness increases, and by 5 months, the infant becomes mindful of body parts and explores the body as he or she plays with feet, curious about the world around, and feels attained objects. At 6 months, the infant is able to transfer objects from hand to hand, using his or her hands in a more purposeful way then at 7 months he or she feeds self, can transfer objects from one hand to another and rakes at a pea. At 9 months, the thumb and index finger are apposed, an action of much practical benefit, known as a pincer grasp, or the scissors grasp. The playful infant also enjoys banging two blocks together. With the new ability to hold small objects, choking can become a risk to the mobile infant. Gummy candies, raisins, chunks of celery, whole nuts or soft marshmallows may be culprits! (Fernando and Potock, 2015).

Increasingly deft with ability for minute action, the 10 month old has a competent index finger approach, releasing a cube into a cup and picking up small objects. At 11 months, finger thumb apposition now allows a more mature pincer grip. At 12 months the infant can put blocks in a cup and may repeatedly bang two cubes together. At this time, threading beads, under close supervision, requires the

power of concentration and may nurture persistence and some important developmental skills. At 13 months, a tower of two cubes on a flat hard surface is successfully made. Given a crayon, the infant starts scribbling spontaneously. At 15 months, scribbling is an enjoyable activity. A tower of two to three blocks is built. Sorting and stacking cubes as well as threading beads, all call for gains in focus and concentration.

There is a sense of self pride, when at 18 months, the infant makes a tower of three to four cubes and because of great success at spontaneous scribbling, he or she would love to try it also on the walls! Dominance of one hand develops at around this time. In drawing, the infant can imitate strokes and in feeding, a spoon is managed without rotating it.

iii. Auditory, Speech and Language Development

Hearing, speech and language development (Kliegman et al., 2016) are as dependant on internal factors as they are on external stimuli. The foundations of speech and language development are laid down in the first year. The development of language helps communication, expression, and perhaps some understanding of feelings. In some way, it also helps thinking, problem-solving and interpersonal relationships. The crucial initial step in reading and writing is indeed language development ("Raising Children Network", 2018). A child who is exposed to the chatter of siblings or the constant nuances of a mother, learns to speak faster. Children need to be able to hear in order to learn to speak effectively, hence there is interaction and interdependence of one developmental ability with another.

Clearly, it is important to encourage a child's language development by talking to and by intent listening, to the infant. When babbling starts, it is advisable to be attentive and to respond with words and active communication ("Raising Children Network", 2018). Impacted by multiple factors, the language developmental pyramid at different stages is illustrated in Fig. 5. The infant coos, vocalises, squeals, babbles, and then progresses to meaningful words and sentences, and many grasp language fairly well by 3 years.

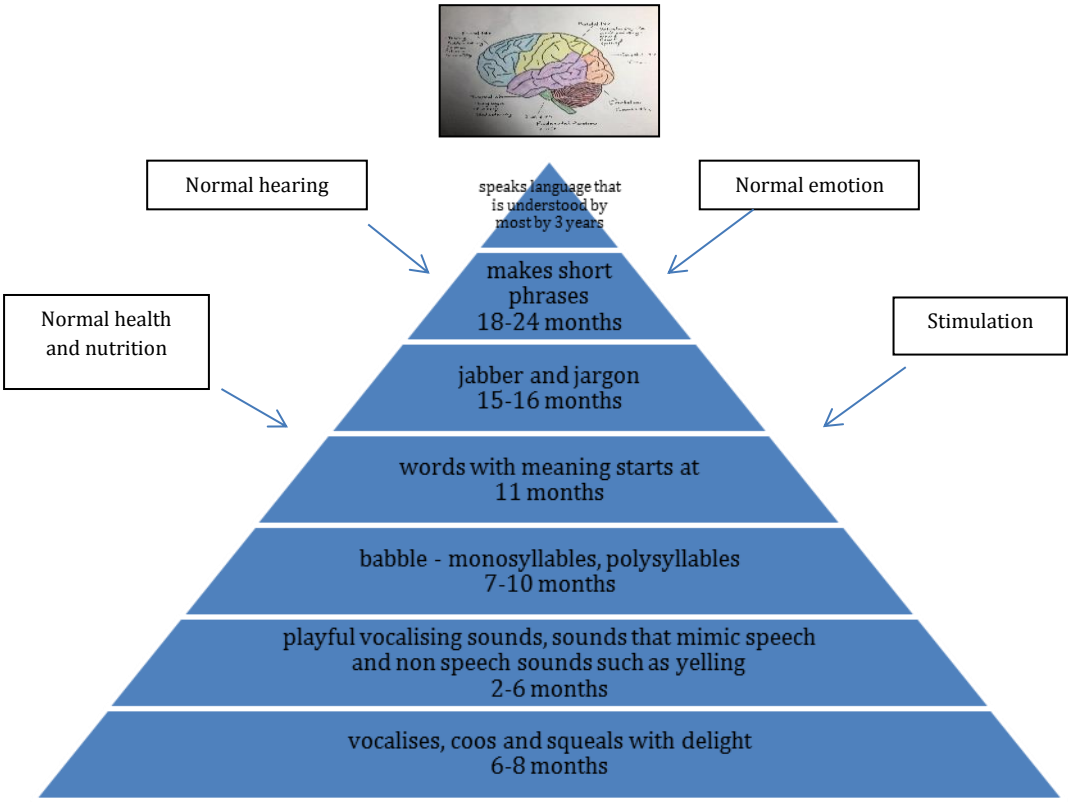


Fig. 5: Language development. There are variables that contribute to the pace at which speech develops and these are linked to nutrition, health and growth of the child. Normal hearing, optimal emotional development and environmental stimulation are vital components in this process.

iv. Social and Cognitive Development

Social and cognitive development (Kliegman et al., 2016) involves the frontal and tempero-parietal lobes and integrative connections. A child learns to respond to the environment, to emotional cues and a host of different stimuli which are useful for such development. An infant focuses on the face, imitates, gestures, follows simple commands and differentiates animate from inanimate objects. The toddler matures emotionally by imitating actions, developing identity of self and gradually enjoys interactive and imaginary play. Each milestone constitutes a platform as basis for the next.

The growing 2 week old focuses on the face of a person, an action referred to as face regard, smiles instinctively, but not yet to familiar things or faces. About 3-4 weeks later, there is a responsive smile, an early indication of interaction and a pivotal developmental milestone. The infant begins to show facial expressions of security and comfort. Children express happiness, interest, surprise, fear, anger, sadness and frustration with responsive delight towards the mother or caretaker.

'Laughter is the best medicine' and indeed the 3 month old infant starts to laugh responsively. At 4 months, there is 'hand regard' with attempt to reach out for toys. There is a growing sense of self or I and the infant may realise that he or she can amuse self. At 5 months, the infant brings things to the mouth, an act termed 'mouthing'. Toys must be clean and safe (Hor et al., 2013).The infant may be teething if he or she drools excessively, bites eagerly on toys and fingers or refuses to suck. There may be loose stools and the infant sucks the lips excessively resulting in red bumps on gums (Hor et al., 2013). At 6 months, the infant attempts feeding finger foods, enjoys playing and spraying saliva - a fun game of "blowing raspberries" (Hor et al., 2013; "Raising Children Network", 2018).

A time for the development of some fear, the 7 month old is discernibly anxious towards strangers. Signs of stranger anxiety may include sudden quietening and fearfulness of strangers with increasing attachment to the caregiver. The child may be physically very close to caregivers, burying into their arms for a sense of much needed security.

It is fun time when at 9 months the infant can wave bye-bye, plays pat-a-cake, feeds self with a spoon and looks for a fallen toy. He or she also begins to understand "NO!" and refrains from doing the forbidden action. A month later, the infant imitates others, enjoys the game of "peek-a-boo", anticipates, identifies and recognises familiar faces utilising both memory and social skills.

More a social being now, the 12 month old is less likely to fear strangers and tolerates some separation anxiety from the caregiver. The infant is able to drink from a cup, learning by imitation. He or she appears shy. Casting is observed, the infant learning the cause and effect of things. Now the infant understands the word "NO!" more comprehensively. At 13 months, the infant enjoys casting objects and can take off shoes while mouthing stops. Meal time experiences are pleasurable, the infant feeding self with cup and spoon and a mealtime "mess" may even be desirable towards overall development.

Domestic mimicry is relished by the 15 month old infant who uses a spoon and a fork. At 18 months, an important social and cognitive milestone is achieved when there is imaginary and pretend play. The infant begins to be aware of ownership .Temper tantrums may be more obvious. At this time, the infant shows dependence on transitional objects such as a favourite doll or a blanket for security. At 18 months there is further development of the sense of caring, sharing and nurturing.

It is thus clear that in the well-baby clinic, the developmental history can give important information. This, together with a complete clinical history and physical examination, give clues to the cause of any possible problem that should arise. In some children who are detected to have delays in development, when developmental milestones lag behind, the qualified health worker or medical practitioner should attempt to make a differential diagnosis of the cause of the condition. Additionally, the social history or the history of past illnesses or exposures to toxic agents may prove to be areas that need to be further explored. This may be a unique task when the infant is exposed to, or lives within, special settings. Additional investigations and an expert referral may also be needed. To cite an example, in a child found to have delayed development, in a military setting, one may additionally ask about parental history of aviation, aquatic or battlefield events. Could these exposures have direct or indirect effects on the child's brain growth and function? These questions, with other aspects of clinical clerking and

investigations, may give clues to possible areas for intervention. The early interview of both parents in the well-baby clinic could prove to be a useful, holistic health care tool.

Vaccination as Integrated, Universal Primary Prevention of Disease

Immunisation, universal primary prevention, works by integrating the effects of the vaccine antigen with the immune system of the body. Immunisation prevents a disease caused by a pathogen before the pathogen infects and invades the body to cause suffering and illnesses. Part of the organism or the antigen in the vaccine stimulates the child's immune response so that the child can mount a limited but protective immune response against the organism causing the disease. This occurs as the immune system, through vaccination, is primed to recognise and mount protective responses against the disease -causing pathogen. The right of every child to benefit from such protection must certainly be championed by all and the well-baby clinic is an indispensable opportunity to avail.

Orally administered vaccines stimulate the immune system in the gastrointestinal tract, a key player of mucosal immunity (Kim and Jang, 2017). The mucosal immune system links to the lymphoid tissue in other mucosal areas such as the respiratory tract, conjunctivae and female reproductive tract (Kutty and Mohamed, 2010). The lymphoid tissue in the gastrointestinal tract or the gut-associated lymphoid tissue (GALT) encounters antigens and responds immunologically. Cells in the GALT potentially enter the circulation, colonising mucosae for needed protection (Kutty and Mohamed, 2010). Hence, oral vaccination can induce gut immune responses and protection at distant mucosal sites. Oral vaccination typically generates abundant sIgA, for defences at mucosal sites of pathogen entry (Kim and Jang, 2017).

Pan-globally, there are misconceptions regarding vaccines ("WHO | Six common misconceptions about immunization", 2018). These interfere with vaccine uptake and such unfounded fears and dogmas must be overcome by instilling knowledge and creating awareness. People may be of the opinion that good hygiene and sanitation alone can control infectious diseases rather than believing that vaccination together with good sanitation are both pivotal for disease prevention. Others feel that many who get diseases are already vaccinated as a point against vaccination. Some recognised immunisation 'phobias' include vaccines containing mercury and purported links to autism, vaccines not being agreeable to some faiths, the believe that natural protection is safer, reasoning that too many vaccines burden the immune system (Ali, 2016).

The age of administering the vaccines, the common side effects, and some aspects of pathological and epidemiological integration are given in Tables 1 and 2. Vaccines are safe and essential for all children and are administered in the well-baby clinic. However, very rarely a severe allergy to the vaccine or any component of it would contraindicate further use of the particular vaccine.

Table 1: A modified, integrated scheme of compulsory vaccinations

Relevant information adapted from the understanding of Kliegman et al., 2016 and Ismail et al., 2012.

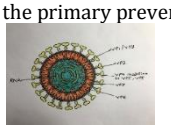
AGE	VACCINE	PATHOLOGICAL AND EPIDEMIOLOGICAL INTEGRATION	SIDE EFFECTS OF VACCINE
Birth	BCG (Bacillus Calmette–Guérin)	BCG: This vaccine is effective against some forms of tuberculosis (TB).The usual site is under the skin on the left upper arm. In 4-8 weeks, the site of injection becomes red with a small boil and pus within. This will heal in about a week. The protection of the vaccine varies considerably across the world for tuberculous meningitis, miliary TB and for pulmonary TB. Transmission: *Mycobacterium tuberculosis* can be transmitted through the coughs and sneezes of infected individuals or ingesting raw cow's milk.	BCG vaccinations are administered intradermally and vaccination reactions include moderate axillary or cervical lymphadenopathy, induration and subsequent pustule formation at the injection site. A good local scar at the site where BCG is given is a desirable response.
	Hepatitis B	Hepatitis B: Viral hepatitis B is prevalent in Asia. In Malaysia, about 1 million people are infected with hepatitis B chronically (Raihan, 2016). Hepatitis B vaccine is safe and effective against liver inflammation, liver cancer and cirrhosis. In infants	Hepatitis B: Local soreness and other mild reactions at the injection site. Fever and flu-like symptoms may be seen in some within 2 days of vaccination and are usually innocuous. Skin

AGE	VACCINE	PATHOLOGICAL AND EPIDEMIOLOGICAL INTEGRATION	SIDE EFFECTS OF VACCINE
		whose mothers are positive for Hepatitis B antigen, both the immunoglobulin and the vaccine are given as soon as possible after birth. • Transmission: Blood, semen or other body fluids infected by the virus, hence blood transfusion or sexual activity may be transmission routes .Needle stick injuries are potential routes of transmission. The use of intravenous drugs in drug addiction is also a high risk activity for its transmission.	rashes and urticaria are also recognised. Injection site reactions can be reduced by gently placing a warm compression pack rotating it around the affected area. The warmth will allow better blood flow to the area for speedy recovery of the soreness and swelling.
1 month	Hepatitis B	(Refer as above)	(Refer as above)
2 months	DTaP (Diphtheria-Tetanus-acellular Pertussis) Hib (Haemophilus influenza type b) IPV (Inactivated Polio Vaccine)	The DTaP-IPV-Hib vaccine confers protection against diphtheria, tetanus, pertussis, polio, and *Haemophilus influenzae* type b, all of which are potentially dangerous diseases. The advantage of vaccination is that the immunisation of a significant proportion of individuals in a community will protect even those who are not vaccinated. This is referred to as herd immunity. *Haemophilus influenzae* type b is a cause of a disease known as acute epiglottitis. This disease causes upper airway obstruction with breathing difficulties such as stridor, high fever and toxicity. Every child in the globe deserves to be protected from this disease. • Diphtheria transmission :Person-to-person transmission by breathing in or touching the particles contaminated by *Corynebacterium diphtheriae* that live in the nose and throat of an infected individual. • Tetanus transmission: Unhygienic material gains access into a wound or cut. Infection by *Clostridium tetani* causes fever with physical signs such as an umbilical stump that is malodorous and sticky, with a red flare around the skin of the umbilicus. Hence it is possible that neonatal tetanus can occur even after the cord falls off. • Pertussis transmission: Person-to-person by breathing in or touching the particles of the bacterium, *Bordetella pertussis*, that live in the nose and throat of an infected individual. • *Haemophilus influenza* type B transmission: Person-to-person by breathing in or touching contaminated particles of the bacterium. This organism normally resides in the nose and throat of an infected individual. • Polio transmission: The virus contaminates the faeces and saliva by a faeco-oral transmission route.	DTaP-IPV-Hib May be associated with some change in baby's behaviour, mild fever, slight loss of appetite and slight soreness at the injection site. These reactions are mild and generally last 1 to 2 days. Reactions that occur much less frequently with DTaP used currently than with DTP (Diphtheria-Tetanus – Pertussis) used in the past include high fever, persistent crying for three hours or longer, hypotonic-hypo-responsive episodes where the child becomes hypotonic or floppy, loses awareness and may even lose consciousness. Febrile seizures with DTP.
3 months	DTaP Hib IPV		
5 months	DTaP Hib IPV		
6 months	Hepatitis B Measles (Sabah only)	Hepatitis B:(Refer as above) Measles: Protects against the viral exanthem, measles or rubeola, and its complications such as pneumonia and encephalitis. This is especially dangerous in malnourished or ill children. • Transmission: Person-to-person by breathing in or touching the particles of the virus that live in the nose and throat of an infected individual or carrier.	Hepatitis B vaccine:(Refer as above) Measles vaccine: Soreness at injection site. Transient mild rash, macular or papular in nature, fever usually 5-12 days after vaccination, febrile seizures, symptoms of upper respiratory tract infection.
9 months	MMR (Mumps-Measles-Rubella)	MMR: Protects against 3 viral exanthems – measles, mumps and rubella. • Measles transmission: Person-to-person by breathing in or touching particles of the virus that lives in the nose and throat of an infected individual. By the coughs and sneezes of carriers. • Mumps is transmitted when an infected person coughs, talks or sneezes • Rubella is transmitted when an infected person speaks coughs or sneezes. Rubella is important for females because its infection during pregnancy can	Expect some delay in reactions in about 5-12 days of vaccination such as fever, fussiness and a mild rash. Plenty of breast milk, loose clothing, some paracetamol syrup (120mg/5ml) thrice a day and lots of tender loving care are usually all that is needed. Measles:(Refer as above)

AGE	VACCINE	PATHOLOGICAL AND EPIDEMIOLOGICAL INTEGRATION	SIDE EFFECTS OF VACCINE
	JE (Sarawak) (Japanaese Encephalitis)	cause abnormalities to the foetus and Congenital Rubella Syndrome. JE: Japanese encephalitis virus (JEV), a mosquito-borne flavivirus, is the most common cause of encephalitis in Asia prevented by vaccination. Japanese encephalitis (JE) occurs in Asia and the western Pacific regions. • Transmission: JEV transmission mainly occurs in rural agricultural areas, linked to water stagnation where large numbers of vector mosquitoes breed closely to animal reservoirs(Fischer et al., 2010)  Fig. 6: Vectors are agents for the transmission of diseases. The female culex mosquito injects the virus into the body and causes disease by weakening the immune system. Vaccination protects from some infectious diseases through the immune system, priming it to respond appropriately, by limited exposure to the antigen.	Mumps vaccine: May cause fever, headache, muscle pain, tiredness appetite loss, and rarely transient rash. Rubella vaccine: Skin rash, fever, headache, joint or muscle pain. At the injection site reactions include pain, swelling, redness. JE vaccine: Fever, chills, headache. Injection site reactions include pain, swelling, redness.
12 months	MMR	(Refer as above)	(Refer as above)
18 months	DTaP Hib IPV	(Refer as above)	(Refer as above) Fluids, loose clothing, some paracetamol syrup (120mg/5ml) and tender loving care will usually suffice.

Table 2: A modified, integrated scheme of optional vaccinations

Relevant information adapted from the understanding of Kliegman et al., 2016, Ismail et al., 2012 and "MPA – Malaysian Paediatric Association", 2010.

AGE/DURATION OF VACCINATION	VACCINE	DISEASES PREVENTED AND MODE OF TRANSMISSION	SOME POSSIBLE SIDE EFFECTS OF VACCINE
2 – 6 months (3 doses, 1 month apart from 6 weeks). 12 – 15 months (1 dose, booster).	Pneumococcal (conjugate) vaccine	This vaccine prevents morbidity such as infections that cause pneumonia or infections of the lung, septicaemia or a blood infection and bacterial meningitis or infection of the covering of the brain. • Transmission: From the coughs and sneezes or close contact with the nasal discharge of carriers of the bacterium *Streptococcus pneumoniae.*	Fever, chills, headache, joint or muscle pain, skin rash. Injection site reactions such as pain, swelling and redness. Injection site reactions can be reduced by gently placing a warm compression pack rotating it around the affected area. The warmth ensures better blood flow and rapid recovery of the soreness and swelling.
>2 years old 1 dose Booster at 3 – 5 years only for high risk individuals	Pneumococcal (polysaccharide) vaccine		
≥ 6 weeks old (first dose). 6 – 8 months (ideally completed).	Rotavirus	Commonest cause of diarrhoea in infants and young children leading to severe dehydration • Transmission: Infected stool found on hands, nappies, toys or at nurseries (via the faeco-oral route) Breastfeeding strengthens gut immunity. Breastfeeding and vaccination are both important in the primary prevention against rotaviruses.  Fig. 7: The Rotavirus can be resistant to simple hygienic measures. It causes severe diarrhoea and dehydration in the infant. The oral vaccine stimulates gut immunity against this disease. Those sent to nurseries and day care centres are at risk.	Irritability, fever, vomiting, diarrhoea, appetite loss, tiredness, stomach pain. Plenty of breast milk, loose clothing and lots of tender loving care are all that is usually needed.
12 months – 12 years (1 dose)	Varicella-Zoster	Prevents chickenpox or varicella zoster • Transmission: Person-to-person by breathing	Papulo- vesicular skin eruptions. Headache, fever,

AGE/DURATION OF VACCINATION	VACCINE	DISEASES PREVENTED AND MODE OF TRANSMISSION	SOME POSSIBLE SIDE EFFECTS OF VACCINE
≥ 12 years (2 doses, ≥4 weeks apart).		in or touching the particles of the virus from the fluid within the vesicles of skin lesions.	chills, tiredness. Injection site reactions such as itching or pain and swelling.
> 12months (2 doses, 6 – 12 months apart).	Hepatitis A	Induces antibodies in the body to protect the individual against the Hepatitis A virus. • Transmission: Water or food that has been contaminated with the faeces of an infected individual (via the faeco-oral route).	Local reactions. Flu-like symptoms.
6 months (minimum age) 1 dose.	Influenza	Protects against flu viruses. Common flu vaccine confers protection against influenza A, H3N2 virus, H1N1 virus and influenza B virus. This vaccine is useful in children with underlying congenital or chronic diseases of the heart and lung. • Transmission: Person-to-person by breathing in or touching the particles of the virus or contact with contaminated objects.	Muscle pain, fever, headache, nausea. Injection site reactions.
Immunisation before exposure: 3 doses at day of exposure, day 7 and day 28. Every 2 – 3 years (booster). Post-exposure: There are different schedules in those immunised and not immunised.	Rabies	Prevents infection caused by the rabies virus. • Transmission: Saliva of an infected animal comes into contact with an open wound or mucous membrane of an individual.	Headache, stomach pain, nausea, muscle pain. Injection site reactions.
1 dose. Meningococcus A,C, Y&W-135. Immunity up to 3 years. Purposes of holy pilgrimage or Hajj - Proof of meningococcal vaccination at least 10 days and no more than 3 years before arrival for polysaccharide vaccine and no more than 8 years before arrival for conjugate vaccine. (Parker and Gaines, 2017)	Meningococcal	Meningococcus or *Neisseria meningitidis* can be easily recognised by Gram stain. It is Gram-negative diplococci. Meningococcal disease is a very important cause of blood infections in young children. It can cause infections of the covering of the brain and multi-organ. By vaccination, the incidence can be reduced. • Transmission of meningococcal disease occurs by close contact with persons carrying or infected with the bacterium. Living together, sharing things and activities such as kissing are recognised as transmission modes.	Local reactions. Irritability, fever, chills. Injection site pain can be relieved by warm compression encouraging better blood flow for healing and removal of debris.
3 doses, 2 days apart Every 3 years (booster) Contraindication: <6 months	Typhoid (Ty21a) vaccine	Protects against typhoid fever • Transmission: A carrier of S*almonella Typhi* may transmit the organism by faecal contamination of food or drinks.	Headache, fever, nausea, diarrhoea, stomach pain
9 months (minimum age). 1dose.	Yellow fever	Protects against an acute viral haemorrhagic disease. Recommended for those travelling to endemic areas and are at least 9 months of age. • Transmission: Mosquito bites by the infected Aedes or Haemagogus species.	Headache, muscle pain, fever, soreness at the injection site
Between 9 months and 12 years 2 doses with 6-12 week interval	MMRV (Mumps, Measles, Rubella and Varicella-Zoster vaccine)	Protects against mumps, measles, rubella and varicella zoster	Refer above as for MMR and Varicella-Zoster. Hydrate the child well ensuring intake of lots of fluids. Loose, comfortable clothing, antipyretics and some loving attention will help tide over the mild discomforts.

Unique exposures may require additional protection. Children who live in the military environment may pose special diagnostic challenges possibly attributed to by both direct and indirect exposures to specific high risk environments. These unusual risks may impose hazards of unexpected diseases, possibly causing unpredictable virulence of pathogens, due to host, disease or transmission factors. In these circumstances, additional protection by optional vaccines such as the yellow fever vaccine, the typhoid vaccine and so on, may be added preventive health measures. These may be conveniently offered in a well- baby clinic when deemed necessary.

Conclusion

Preventive child care offered through services such as in the well-baby clinics, highlight health monitoring opportunities, providing baseline data for comparison and necessary documents for quick intervention. When surveillance of any one of the 4 pillars of preventive health indicates the necessity for prompt review, every effort must be taken for primary prevention and timely clinical deliberation. Furthermore, motivation and innovative thinking in clinical clerking may be required when challenged by problems encountered in unique scenarios such as in the military setting.

Health awareness by understanding, integration as well as by stimulating and supporting frank discussion between parents and the health worker at the well-baby clinic is a compelling influence towards the promotion of comprehensive and cost-effective utilisation of preventive health care.

Indeed, the dissemination of health information, as outlined in this article, provides window of opportunity for reinforcing that 'prevention is better than cure'. Providing energetic and motivated preventive strategy in the health care of children by the goals of a well-baby clinic undoubtedly embrace an exceptional, time -tested tool for universal health.

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