

## RECOMMENDATIONS

### Indian Academy of Pediatrics Guidelines for Pediatric Skin Care

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**Objective:** To develop standard recommendations for skin care in neonates, infants and children to aid the pediatrician to provide quality skin care to infants and children. **Justification:** Though skin is the largest organ in the body with vital functions, skin care in children especially in newborns and infants, is not given the due attention that is required. There is a need for evidence-based recommendations for the care of skin of newborn babies and infants in India. **Process:** A committee was formed under the auspices of Indian Academy of Pediatrics in August, 2018 for preparing guidelines on pediatric skin care. Three meetings were held during which we reviewed the existing guidelines/ recommendations/review articles and held detailed discussions, to arrive at recommendations that will help to fill up the knowledge gaps in current practice in India. The initial draft of the manuscript based on the available evidence and experience, was sent to all members for their inputs, after which it was finalized. **Recommendations:** Vernix caseosa should not be removed. First bath should be delayed until 24 hours after birth, but not before 6 hours, if it is not practically possible to delay owing to cultural reasons. Duration of bath should not exceed 5-10 minutes. Liquid cleanser with acidic or neutral pH is preferred, as it will not affect the skin barrier function or the acid mantle. Cord stump must be kept clean without any application. Diaper area should be kept clean and dry with frequent change of diapers. Application of emollient in newborns born in families with high risk of atopy tends to reduce the risk of developing atopic dermatitis. Oil massage has multiple benefits and is recommended. Massage with sunflower oil, coconut oil or mineral oil are preferred over vegetable oils such as olive oil and mustard oil, which have been found to be detrimental to barrier function.

**Keywords:** Cleanser, Emollients, Infant, Massage, Newborn.

Skin is the largest organ in the human body with vital functions such as barrier integrity, thermoregulation, immunological function, protection from invasion of microbes and ultraviolet rays [1]. The skin of a newborn or an infant is different from the adult skin. Skin of the term newborn is 40-60 times thinner, less hydrated and has reduced natural moisturizing factor (NMF) compared to the adult skin. The skin of a preterm baby is thinner than that of a term baby and is vulnerable to impaired thermoregulation, increased skin permeability, increased transepidermal water loss (TEWL), dehydration, predisposition to trauma and increased percutaneous absorption of toxins. The fragile and delicate nature of the skin of the neonate calls for special care in cleansing. It has been observed that skin of the newborn undergoes various structural and functional changes from birth to first five years of life [2,3]. About 30% of children who attend the pediatric out-patient departments present with dermatological disorders, which makes it essential to

prioritize skin health from the very beginning [4]. Skin care in newborn or a child is not given the due attention that is required, and in addition, in India, there are varied community and culture-based practices that can adversely affect the healthy skin in babies [5]. Hence, there is an urgent need for formulation of standard recommendations for skin care of newborns and infants in India based on the available literature.

#### PROCESS

To accomplish the goal of preparing guidelines on pediatric skin care, a committee comprising of pediatricians and dermatologists with experience in pediatric dermatology (**Annexure I**) was formed under the auspices of Indian Academy of Pediatrics (IAP) in August, 2018. We performed a literature search across multiple search engines, namely Pubmed, MEDLINE, Cochrane and Google Scholar for the terms, “newborn/preterm/infant skin care”, “first bath”, “WHO guidelines”, “recommendations”, “cord care”, “nappy

care”, “cleanser”, “emollients”, “massage.” Search was limited till September, 2019. We did a systematic review of the evidence available on skin care for babies in the various headings such as bathing, cleansing, care of the umbilical cord, nappy care, care of hair, cleansers, oils used for baby massage, atopic dermatitis and dry skin. Three meetings were held, during which we reviewed the existing guidelines/recommendations and review articles, and held discussions, with regard to skin care practices in neonates, infants and children, to arrive at recommendations that will help to fill up the knowledge gaps in current practice in India. The first meeting was held in Mumbai on 5 August, 2018 and the two subsequent meetings were held at Chennai on 12 May, 2019 and 20 October, 2019. An initial draft was prepared based on the available evidence and experience, and then sent to all the other members for their inputs, after which, the final recommendations were drafted.

**GUIDELINES**

**Newborn Skin Care**

Care of the skin of newborn babies encompasses assessment of the skin, identification of the risk factors that will affect the barrier function and routine care of skin.

*Assessment of the skin of the neonate:* During the first examination of the newborn, it is essential to do a head to foot examination of the skin. Various parameters to be observed are dryness, scaling, erythema, colour, texture and physiological changes. Neonatal skin condition score (NSCS) based on the score (1 to 3) given to the condition of neonate’s skin related to dryness, erythema, and break down/excoriation is useful for daily evaluation of newborn skin. Perfect score is considered to be 3, while worst score is 9 (**Fig. 1**) [6].

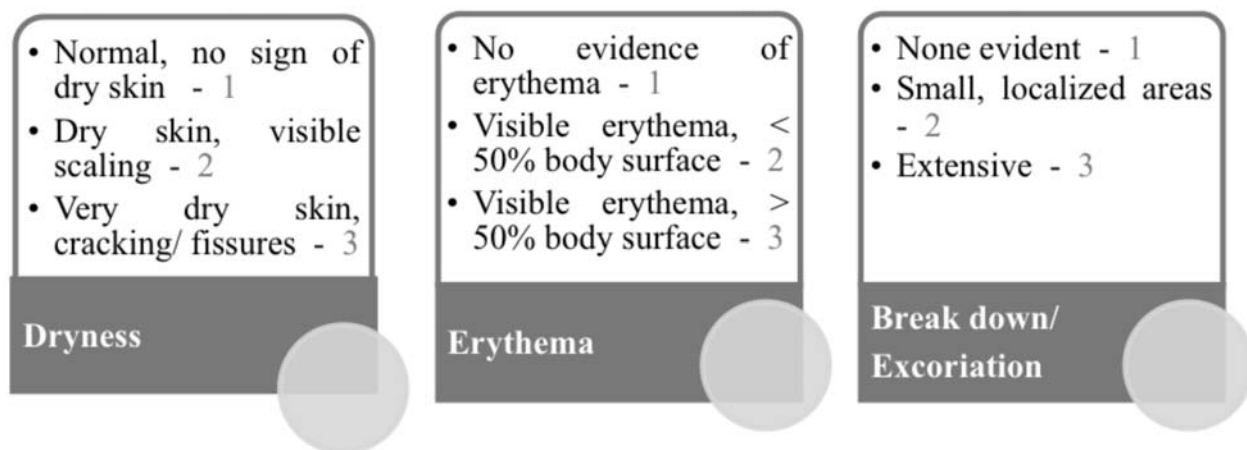
*Identification of risk factors that will affect the barrier function:* Epidermal barrier function will be affected due to immaturity of the skin, phototherapy, iatrogenic injuries, extensive epidermolysis bullosa, septicaemia and environmental temperature. Treatment related risk factors may occur due to antiseptics, adhesives and vehicles in topical medications. Term babies with either physiological or pathological jaundice on phototherapy and preterm babies in incubator are susceptible to increased transepidermal water loss (TEWL).

**Routine care of skin in term and preterm**

Ideal care of skin of newborn comprises of gentle cleansing, protection of barrier function, prevention of dryness of skin, avoidance of maceration in the body folds and exposure to toxins, prevention of trauma and promotion of normal development of skin.

**Skin to skin care**

WHO recommends that soon after birth, baby is placed on the abdomen of the mother before the cord is cut or over the chest after the cord is cut, after which entire skin and hair is wiped with a dry warm cloth. It is strongly recommended that the baby dressed only in a diaper (maximises the skin to skin contact between the baby and the mother), be left on the mother’s chest with both of them being covered with pre-warmed blankets, for at least 1 hour after birth, as this will help to promote breast feeding and prevent hypothermia. WHO strongly recommends skin-to-skin care (SSC) for all mothers and newborns without complications, irrespective of the mode of delivery immediately after birth [7]. (*Strong recommendation; Level of evidence VII*). If the mother is unable to keep the baby in skin to skin contact due to complications, then the baby should be well wrapped in a warm, soft dry cloth. Head of the baby should be well



**Fig. 1** Neonatal skin condition score.

covered with a dry cloth to minimize the heat loss.

### **Vernix caseosa**

Vernix caseosa is a natural cleanser and moisturiser known for its anti-infective, antioxidant and wound-healing properties. Development of acid mantle is facilitated by vernix caseosa, which also supports the normal bacterial colonization [8,9]. WHO and the European round Table meeting recommend that vernix caseosa should not be removed because of the various beneficial functions [10-12] (*Strong recommendation; Level of evidence VII*). Vigorous rubbing of the baby should be avoided. If the baby's skin is stained with blood or meconium, wet cloth should be used to wipe followed by a dry cloth.

### **First Bath of the Newborn**

It is a well-known fact that bathing in newborn can lead to hypothermia, increased demand of oxygen, unstable vital signs and disruption of behavior. WHO recommends that the first bath should be delayed until 24 hours after birth but not before 6 hours, if it is not practically possible to delay owing to cultural reasons. But while bathing a baby after 6 hours of life, one must ensure that the baby is normothermic with a stable cardiorespiratory status [10-14]. (*Strong recommendation; Level of evidence VII*). This holds good for a term baby weighing more than 2.5 kgs. Delayed bathing promotes successful initiation of breast feeding, and facilitates bonding and skin to skin care [15]. Bath should always be given in a warm room and the temperature of bath water should be between 37°C and 37.5°C [11]. Temperature of the water should be checked by the health worker or caregiver by immersing their hand. Duration of bath should not exceed 5-10 minutes as an over hydrated skin is fragile with increased threshold for injury [11] (*Strong recommendation; Level of evidence VII*).

If choosing to give a tub bath, depth of the water should be 5 cm, up to the hip of the baby. As bath tub and bath toys are potential sources of infection, they must always be disinfected [11]. It would be ideal for the health workers to use gloves while giving the first bath [11]. In those babies born to mothers infected by hepatitis B and/or HIV, bath should be given at the earliest when the baby is physiologically stable, with stringent aseptic precautions [16,17].

It will be ideal to use a synthetic detergent (syndet) rather than a soap to cleanse the baby as the latter tends to damage the epidermal barrier. It has been observed that it takes about an hour for the regeneration of skin pH after use of soaps. Syndet liquid cleansers are preferred over syndet bars. Liquid cleansers with acidic or neutral pH

(appropriate blend of ionic, non-ionic and amphoteric surfactants) do not affect the skin barrier function or the acid mantle and hence recommended. AWHONN (Association for Women's Health, Obstetric and Neonatal Nurses) neonatal skin care guidelines recommends the use of minimal amount of pH neutral or slightly acidic cleanser [17]. (*Strong recommendation; Level of evidence VII*). In case of cost constraint, a mild soap with low alkaline pH may be minimally used; although, soaps are best avoided in neonates [11,18].

### **Routine Bathing in Neonates, Infants and Children**

Routine bathing of newborn and infants is mainly need based and dependent on the regional, cultural and climatic conditions. Daily bath not exceeding 15 minutes is preferable, except during winter or in hilly regions, wherein bath may be given twice or thrice in a week or as per the local culture [11]. After bathing, baby should be dried from head to foot using a dry warm towel. Use of bubble baths and bath additives should be avoided as these may increase the skin pH and cause irritation.

### **Care of the Diaper Area**

Diaper area exposed to excessive hydration, maceration, occlusion and friction has an increased pH due to the action of fecal ureases on urea. This increase in pH potentiates the action of fecal enzymes, which are highly irritant to the skin. Hence, diaper area should be always kept clean and dry [19]. Moistened cloth or cotton ball soaked in lukewarm water could be used to clean the area after defecation [20] (*Strong recommendation; Level of evidence VII*). Dry soft cloth/towel can be used to pat dry the skin. Cloth should not be dragged on the skin during removal of faeces or urine or while drying. Only a mild cleanser with slightly acidic to neutral pH that will not disturb the barrier function should be used in the perineal area [11,18,21,22].

Diapers should be changed frequently in order to prevent diaper dermatitis [11,17]. (*Strong recommendation; Level of evidence I*). Duration could vary from every 2 hours in neonates to every 3-4 hours in infants. Cloth napkins are preferable. These are to be washed in warm water and dried in sunlight. Frequent exposure of the nappy area to air would be beneficial [18,22]. If frequent change of napkins is not possible, application of mineral oil to the skin over the diaper area will act as a barrier [18,22]. Baby wipes that are mild on the infant skin may be used [23]. (*Strong recommendation; Level of evidence III*). Wipes should be free of fragrance and alcohol. If disposable diapers have to be used, superabsorbent gel diapers may be used.

Application of barrier creams containing zinc oxide, dimethicone and petrolatum-based preparation at each change of diaper will be beneficial in babies with diaper dermatitis [24] (*Strong recommendation; Level of evidence I*).

### Care of the Umbilical Cord

Umbilical cord should be cleaned with lukewarm water and kept dry and clean. Care taker's hands should be washed before and after cord care. If the stump is soiled, it should be washed with water and syndet /mild soap and dried thoroughly with soft, clean cloth. WHO recommends that nothing should be applied on the cord stump [10,12] (*Strong recommendation; Level of evidence VII*). Diaper should be cladded below the stump. No bandage should be applied on the stump [10,12].

### Care of the Scalp

First hair wash in a newborn baby may be given after the cord falls. Cradle cap of the scalp is the common problem in newborn babies. Application of mineral oil to the crust and removal after 2 to 3 hours will be helpful. Baby shampoos which are free from fragrance could be used. They should not cause irritation to the eyes [18,22]. Hair wash can be given once or twice a week or as and when required in case of soiling [18,25]. In case of children, hair wash can be given twice a week using a mild shampoo.

### Care of Nails

Nails should be cut and kept short [18,26].

### Use of Baby Talcum Powders

Routine use of powders is not advocated in neonates and young infants. In the case of infants, if desired, mother should be advised to smear the powder on the hands and then gently apply on the skin of the baby. Puffs should not be used as it may result in accidental inhalation of powder [18,25]. Powder should not be applied in the groins, neck, arm and leg folds.

### Care of Skin of Preterm Baby

Preterm baby should be kept in a warm environment. Gentle and minimal handling of the preterm babies would be ideal. Hand hygiene measures are to be followed strictly by the mother/caregiver/healthcare workers. Kangaroo mother care is recommended for the routine care of preterm and low birth weight newborns weighing 2000 g or less at birth, as soon as the neonates are clinically stable [12] (*Strong recommendation; Level of evidence VII*).

Tub-bathing which results in less heat loss, is recommended as a safer and comfortable option than sponge bathing in healthy, late preterm infants with gestational age (GA) between 34-36 weeks [27,28]. In a randomized clinical trial (RCT) [29], swaddle immersion bathing method was found to maintain temperature and reduce stress in preterm babies with GA between 30-36 weeks from 7-30 days of postnatal age compared to conventional bathing, and hence was concluded as an appropriate and safe bathing method for preterm and ill infants in NICUs [29]. Swaddled bathing was found to be more effective at maintaining body temperature, oxygen saturation levels and heart rate compared to tub bathing. AWHONN recommends the use of only warm water without use of cleansers, during the first week of life in infants less than 32 weeks of gestation [17]. UK Neonatal skin care guidelines state that babies less than 28 weeks of gestation should not be bathed and instead recommends the use of sterile pre-warmed water to pat dry the skin [30]. Sponge bathing given in stable preterm neonates resulted in a transient drop of temperature at 15 minutes, but not to the extent of causing hypothermia and subsequently temperature began to rise by 30 minutes and normalized by 1 hour post-bath. Hence, it appears to be a safe method of routine cleansing of stable preterm babies [31]. A RCT [32] documented that bathing preterm neonates every 4 days decreases the risk of temperature instability [32].

To summarize, preterm babies with GA less than 28 weeks should not be bathed, and in case of soiling, sterile pre-warmed water could be used to cleanse with gentle patting of the skin to dry [30] (*Strong recommendation; Level of evidence IV*). In India, sponge bathing is the most common method, currently in vogue, to cleanse babies with GA between 28-36 weeks. However, as the comparison studies between sponge bathing and swaddle immersion bathing, have documented that the latter method is more efficacious in thermoregulation and maintenance of oxygen saturation, swaddle immersion bathing could be adopted, with the training of nursing staff [29] (*Strong recommendation; Level of evidence II*). As there is paucity of Indian literature in this area, the need for more research is highlighted.

Preterm babies are more vulnerable to develop percutaneous toxicity because of the thin skin and larger body surface area. Hence stringent care should be taken while using topical antiseptics in these babies. Alcohol containing solutions have been shown to cause skin burns and hence best avoided in preterm babies. 2% Chlorhexidine is a safer alternative topical antiseptic agent used in newborn units. Use of gentle medical adhesives to secure intravenous cannulas is to be

practiced because epidermal stripping secondary to removal of adhesive dressing is the main cause of skin injury in preterm babies. Adhesive should be loosened with mineral oil or petrolatum based emollient and removed gently avoiding the use of adhesive removers. Position of the baby must be frequently changed. Gentle application of appropriately selected emollients will help to decrease the TEWL and maintain the barrier function [11].

### Ideal Cleanser

An ideal cleanser is one that is mild and fragrance free with neutral or acidic pH and does not irritate the skin or eyes. It should not affect the acid mantle of the skin surface, remove the lipids/ natural moisturizing factor (NMF) or disrupt the barrier function [25]. Soapless liquid cleansers appropriately formulated for use in babies could be preferred by virtue of the maintenance of barrier function [11,33]. In children with normal skin, mild soaps are to be used. Syndets are preferred in children with skin disorders that disrupt the barrier function such as atopic dermatitis, ichthyosis, eczema, psoriasis etc.

### Shampoos

They are soapless, and consist of principal surfactant for detergent and foaming power, secondary surfactants to improve and condition the hair, additives to complete the formulation and special effects. Shampoos that are used in babies should be mild, fragrance free and should not irritate the eyes [33,34].

### Use of Emollients

Dry skin is seen in preterm, post term, intra uterine growth retardation babies, neonates under radiant warmers and phototherapy, and in children with conditions like atopic dermatitis, ichthyosis, contact dermatitis and psoriasis. Various factors like bathing in hot water, frequent washing and use of harsh detergents, exposure to low humidity like air-conditioned environment and cold climate will worsen the dryness of the skin. Ceramides, cholesterol, free fatty acids and NMF present in the stratum corneum contribute to the maintenance of the skin hydration and integrity of the barrier function. NMF and free fatty acids play an important role in the maintenance of low pH in the stratum corneum and in turn barrier integrity [35]. Skin of neonate has been observed to have less hydration of the skin surface, thinner stratum corneum and epidermis, less NMF and increased water loss [36]. Similarly, reduced levels of NMF has been observed in the stratum corneum of infant skin. Washing the skin with soaps removes the lipids and NMF resulting in an increase in the pH of the

stratum corneum and altered homeostasis of the skin. Hence liquid cleansers or if not affordable, judicious use of mild cleansing bars would be the ideal recommendation in babies prone for dry skin [35,36]. The baby's skin is clinically dry but may not appear so. Dry skin leads to micro and macro fissure formation which results in easy penetration of allergens and bacteria. Hence, the use of emollients is very important in order to restore the barrier integrity, prevent infections and further damage. Gentle application of emollients will help to enhance and maintain the skin barrier function [11,37] (*Strong recommendation; Level of evidence VII and IV*).

Natural olive oil and mustard oil have been used for many years as emollients. Studies have shown that these disrupt the skin barrier and hence should not be used [5,38] (*Strong recommendation; Level of evidence II*). Vegetable oils high in linoleic acid such as safflower oil or sunflower oil are recommended for infant's skin. Skin barrier recovery occurs faster with sunflower seed oil and petrolatum, whereas it gets delayed with mustard seed oil, soybean oil and olive oil [5,38]. Oleic acid content of olive oil inhibits synthesis of arachidonic acid, increases membrane permeability and TEWL. Mineral oil has been found to be an effective skin moisturiser by virtue of emollient and occlusion property. In addition, mineral oil, which has limited penetration, does not contain the carcinogenic polyaromatic hydrocarbons and hence has been found to be very safe [39]. Appropriately selected emollients which are petrolatum-based, water miscible, and free of preservatives, dyes and perfumes could be used in pre/post term/IUGR babies, neonates under radiant warmers/ phototherapy and in those infants and children with atopic dermatitis, contact dermatitis, psoriasis and ichthyosis. Emollients decrease the risk of invasive infection in preterm infants by prevention of access to deeper tissues and the blood stream through skin portals of entry [36].

In the case of healthy babies, in whom the stratum corneum function has been disturbed by use of harsh soaps, emollients play a significant role, especially during winter. Simpson et al have shown that application of emollient in babies born in families with high risk of atopy tends to reduce the risk of developing atopic dermatitis [40] (*Strong recommendation; Level of evidence II*). Emollients marketed as natural, herbal and organic have to be used with caution as there are limited study data on these and hence, are to be avoided unless proved to be effective and safe.

### Massage

Systematic application of touch is termed as massage.

Massage promotes circulation, suppleness and relaxation of the different areas of the body and tones of the muscles. It relieves the physical and emotional stress in the baby and supports the baby's ability to fulfill the individual developmental potential. Massage increases the activity of the vagus nerve which results in increased levels of gastrin, insulin and insulin like growth factor 1 that enhances the food absorption, weight gain contributing to increase growth. There is greater bone mineralization, more optimal behavioral and motor responses in infants who were given massage. It has been observed that preterm infants who were given massage had reduced cortisol level and parasympathetic response, reduced stress response, increased vagal activity and gastric motility, release of gastrin, improved weight gain and enhanced motor development. Massage of hospitalized preterm or low birth weight babies resulted in improved daily weight gain, reduced length of stay in the hospital and had positive effect on postnatal complications and weight at 4 to 6 months. In summary, benefits of massage are improved barrier function, decreased TEWL, improved thermo-regulation, stimulation of circulatory and gastrointestinal

systems, improved sleep rhythm and enhanced neurological and neuromotor development [41-45].

*Touch therapy –massage – by whom? when? where? how?:* Massage may be given by mother, father, grandparents, caregiver or nurse. Full body massage will need fifteen to thirty minutes of uninterrupted time and is to be given when the baby is quiet, alert and active, preferably one to two hours after feed. Massage is to be given in a warm room. Massage provider should avoid having long nails or wearing any jewelry in the hands. Massage should be slow and gentle but firm enough for the baby to feel secure.

### Oil Massage

Oil acts as a source of warmth and nutrition and helps in weight gain of the babies. Coconut oil, sunflower oil, synthetic oil and mineral oil are being used for massage [5,38,46,47]. Babies massaged with oil showed less stress behavior and lower cortisol levels than those who were given massage without oil [48]. Thus, oil massage has multiple benefits and hence is recommended

**Table I Evidence Based Recommendations for Skin Care in Neonates and Infants**

<i>Recommendation</i>	<i>Level of evidence [50]</i>	<i>Strength of recommendation</i>
Skin-to-skin care (SSC) for all mothers and newborns without complications at least for one hour [7,12]	Level VII	Strong
Vernix caseosa should not be removed [11,12]	Level VII	Strong
First bath should be delayed until 24 hours after birth but not before 6 hours [13]	Level VII	Strong
Duration of bath should not exceed 5-10 minutes [11]	Level VII	Strong
Liquid cleanser with acidic or neutral pH preferred as it will not affect the skin barrier function or the acid mantle [11,17]	Level VII	Strong
Prevention of diaper dermatitis - Frequent change of diapers [24]	Level I	Strong
In babies with diaper dermatitis, frequent change of diapers, use of super absorbent diapers and protection of perineal skin with a product containing petrolatum and or zinc oxide [24]	Level I	Strong
Use of soft clothes and water for cleansing the diaper area is encouraged [20]	Level VII	Strong
Only fragrance free baby wipes can be used [23]	Level III	Strong
Nothing should be applied on the cord stump [10]	Level VII	Strong
Kangaroo mother care is recommended for the routine care of preterm and low birth weight newborns weighing 2000 g or less at birth, as soon as the neonates are clinically stable [12].	Level VII	Strong
Swaddle immersion bathing could be adopted, with the training of nursing staff [29]	Level II	Strong
Gentle application of appropriately selected emollients will help to maintain the barrier function [11,37]	Level VII	Strong
Application of emollient in babies born in families with high risk of atopy tends to reduce the risk of developing atopic dermatitis [40]	Level II	Strong
Vegetable oils such as olive oil and mustard oil should not be used [5,38]	Level II	Strong
Oil massage has multiple benefits and hence is recommended [38,46,48]	Level II	Strong

[38,46,48] (*Strong recommendation; Level of evidence VII*). Mustard oil has been shown to cause irritant and allergic contact dermatitis while olive oil is reported to cause erythema and disruption in skin barrier function [44,45]. Oil massage is to be avoided during summer, if miliaria rubra is present. Oil massage should be given before bath during summer and after bath during winter [38,48,49].

Synopsis of evidence-based recommendations for skin care in neonates and infants is given in **Table I** [50] and assessment of recommendations in **Supplementary Table I**.

### Care of Skin in Special Situations

#### Atopic Dermatitis

Atopic dermatitis (AD) occurs in genetically predisposed children with impaired epidermal barrier function and immune dysregulation. AD is characterized by chronic relapsing dermatitis with pruritus and age dependent distribution of skin lesions. Initially, skin lesions start over the face and trunk followed by extensor aspects and later involves the flexural areas. Emollients containing ceramides, lipids and n-palmitoyl ethanolamine and natural colloid oatmeal are useful in children with atopic dermatitis. Emollients are to be applied within 3 to 5 minutes after a quick bath (5–10 minutes) in lukewarm water and patting the skin dry. Frequency of application should be every 4 to 6 hours depending on the degree of dryness. Emollients should be applied 30 minutes before the application of topical corticosteroid cream. Proper application of sufficient quantity of emollients will help to reduce the frequency of flares. In babies at high risk for atopic dermatitis, application of emollient from birth has been observed to be safe and effective towards primary prevention of atopic dermatitis [40, 51-53].

#### Seborrheic Dermatitis

Seborrheic dermatitis occurs mostly in the sebum rich areas of the body like scalp, face and body. The exact etiology is not known but may be associated with various factors like genetic predisposition, *Malassezia* colonization of the skin, dryness of the body and environmental factors like cold weather. In newborn period, the maternal hormones may trigger this condition. Usually seborrheic dermatitis appears by third or fourth week of life and peaks by 3 months of age. Scaling over the scalp, around the eyes, nose and the folds of the skin and diaper area may be present. It is usually asymptomatic and disappears by one to six months of age. Emollients are useful in infantile seborrheic dermatitis. Hydrocortisone 1% cream has been found to be of use for lesions on the face. Topical azole antifungal agents could be used for lesions in the groin [54].

#### Photoprotection

Routine use of sunscreens has not been a common practice in the community at large in India. But, in the recent years, there is increased interest and awareness evinced among the parents, especially those with children involved in sports. Sunscreens used in children should ideally provide broad spectrum (ultraviolet A and ultraviolet B) coverage, good photo stability and should not cause irritation. Those that contain physical or inorganic filters such as zinc oxide or titanium oxide are preferable. Liquids, sprays and alcohol-based gel formulations are likely to cause irritation and hence are best avoided in children below 12 years. Sunscreens that contain para amino benzoic acid (PABA), cinnamates and oxybenzone may cause allergic contact dermatitis. In infants below 6 months of age, photoprotection with appropriate clothing and headgear is recommended, rather than use of sunscreens. American Academy of Pediatrics recommends limitation of sun exposure between 10.00 am and 4.00 pm, use of protective, comfortable clothing, wide-brimmed hats, sunglasses with ultraviolet (UV) protection and broad-spectrum sunscreen with Sun protection factor (SPF)  $\geq 15$  in infants older than 6 months and children. Sunscreen should be applied 30 minutes before going outdoors with reapplication every 2 hours and after swimming, excessive sweating, vigorous exercise and toweling. Application of appropriate quantity (2 mg/cm<sup>2</sup>) to all the sun-exposed areas is necessary to provide good photo protection [55-57].

#### CONCLUSION

Evidence based standard recommendations for care of the skin of newborn babies and infants will facilitate the improvement of quality of skin care of the babies which in turn will have a positive impact on their future health. These recommendations could be further revalidated with advent of more scientific data in the years to come.

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## ANNEXURE 1

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(in alphabetical order)

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