



Topic Expert Group: Follow-up and continuing care

Transition from hospital to home

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Target group

Infants born very preterm or those infants with risk factors (see preamble of TEG Follow-up & continuing care), parents, and families

User group

Healthcare professionals, neonatal units, hospitals, follow-up teams, and health services

Statement of standard

Families receive a comprehensive discharge management plan to facilitate transition from the hospital to home.

Rationale

The goal is to support the family of high-risk infants following discharge from hospital, to ensure continuity of care, full vaccination, and to avoid unnecessary re-hospitalisation.

Early discharge of very preterm infants is possible without adverse effects if decided on the basis of the infant's physical maturation and competency (e.g. feeding, temperature control, respiratory stability), rather than a certain body weight or gestational age. (1–3)

Preterm infants remain highly vulnerable to infections, specifically to vaccination-preventable diseases. (4) To minimise this vulnerability, very preterm infants should receive full-dose vaccinations at their chronological age as opposed to their corrected age, even if they are still hospitalised. In addition, family members and other close contacts of the preterm infant should be up-to-date with their vaccinations (preventive concept of “cocooning”). (5)

Discharge management (6) is complex and requires careful timing and planning, and should be commenced as early as possible by a multidisciplinary team to ensure continuity of care. (3) Evaluation of discharge readiness has to address the infant as well as the family and community/healthcare system that ensure continuing care. (3) Successful preparation for discharge improves outcomes of very preterm infants in the transition from hospital to home (7), reduces the length of hospital stay (2,8,9), healthcare usage and costs. (10) Timely, schedule-based vaccination of preterm infants reduces the risk for infectious and respiratory morbidity during childhood. (11,12)

Benefits

Short-term benefits

- Reduced length of hospital stay and costs (2,8,9)
- Reduced risk of hospital-acquired mortality and morbidity (2,3)



Long-term benefits

- Seamless care (13)
- Minimised separation of parents and infant (3)
- Continued family support (3)
- Reduced healthcare visits after discharge (2,8,9)
- Reduced infant mortality and morbidity (14)
- Reduced rate of readmissions (8)
- Increased rate of complete vaccination (consensus)
- Improved parental competence and confidence (13,15)
- Reduced stress for parents and family (7)
- Improved parental mental health (9)
- Improved interdisciplinary cooperation and cross-sectoral collaboration for the benefit of the families (13)
- Reduced healthcare costs and costs for the family (7)

Components of the standard

Component	Grading of evidence	Indicator of meeting the standard
For parents and families		
1. Parents are informed and assisted by healthcare professionals in order to participate in care procedures and decision-making from admission to discharge management. (1,9,16)	A (High quality) B (High quality)	Parent feedback, patient information sheet
2. Parents are informed by healthcare professionals about: (1,14,17–19) <ul style="list-style-type: none"> • symptoms and signs of illness of their infant and how to respond • the importance of vaccination of infants and their household contacts • breastfeeding • safe sleeping environment • car seat safety • no smoking environment • follow-up visits for ongoing medical problems, growth, and neurodevelopment • post-discharge positive parenting intervention programmes 	A (High quality) B (High quality)	Parent feedback, patient information sheet
3. Parents receive ongoing psychosocial support that is adapted to their individual needs and resources. (3,20,21)	A (High quality)	Guideline, parent feedback
4. Discharge planning includes training	A (High quality)	Training



and resuscitation for high-risk infants. (3,20,21)

documentation

For healthcare professionals

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|---|--------------------------------------|---|
| 5. A unit guideline on the management of the transition from hospital to home is adhered to by all healthcare professionals. | B (High quality) | Guideline |
| 6. Training on the assessment of discharge readiness using a standard guideline as well as on current national vaccination guidelines, including safety and efficacy data of vaccines related to preterm infants is attended by all responsible healthcare professionals. (1,6,22–24) | A (High quality)
B (High quality) | Guideline,
training
documentation |
| 7. Healthcare professionals communicate with the primary care physician and provide a written discharge summary. (3) | B (Moderate quality) | Clinical records |

For neonatal unit, hospital, and follow-up team

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|---|--|---|
| 8. A unit guideline on the management of the transition from hospital to home is available and regularly updated. | B (High quality) | Guideline |
| 9. A multidisciplinary meeting is arranged for each high-risk infant prior to discharge. (3,8) | A (Moderate quality)
B (Moderate quality) | Guideline |
| 10. Discharge planning is continuously assessed from admission. (8,23) | A (Moderate quality) | Clinical records,
guideline |
| 11. Regular meetings to discuss parental participation and competencies, family, and social issues are organised. (3,8) | A (Moderate quality)
B (Moderate quality) | Clinical records,
guideline |
| 12. Training on the assessment of discharge readiness using a standard guideline as well as on current national vaccination guidelines, including safety and efficacy data of vaccines related to preterm infants is ensured. | B (High quality) | Guideline,
training
documentation |
| 13. Rooms and equipment for counselling/training of parents are available. | B (High quality) | Audit report |



For health service		
14. A national guideline on the management of the transition from hospital to home is available and regularly updated.	B (High quality)	Guideline

Where to go – further development of care

Further development	Grading of evidence
For parents and family	
<ul style="list-style-type: none">Offer a family-centred care programme with follow-up home visits. (8,25) (See TEG Follow-up & continuing care)	A (High quality) B (Moderate quality)
For healthcare professionals	
<ul style="list-style-type: none">Offer special education and skills to follow-up team, e.g. case management, communication, social work. (8)	B (High quality)
For neonatal unit, hospital, and follow-up team	
<ul style="list-style-type: none">Provide support services for siblings. (3,26)	B (Low quality)
<ul style="list-style-type: none">Enable residence facilities for families. (13,27,28)	B (Low quality)
For health service	
<ul style="list-style-type: none">Provide framework enabling parents to be with their infants (e.g. parental leave, financial support for travelling, accommodation). (29)	B (Low quality)

Getting started

Initial steps	
For parents and family	
<ul style="list-style-type: none">Parents and family are informed by healthcare professionals about specific health requirements of their infant (including vaccination, nutrition, safe sleeping, and car seats).Participation of parents is supported (train in care procedures and if necessary registration with a physician).	
For healthcare professionals	
<ul style="list-style-type: none">Attend training on the assessment of discharge readiness using a standard guideline as well as on current national vaccination guidelines, including safety and efficacy data of vaccines related to preterm infants.Establish a structure of communication with primary care physician, community/healthcare services and follow-up services.Identify a coordinator for discharge management (e.g. case manager, family nurse, etc.).	
For neonatal unit, hospital, and follow-up team	
<ul style="list-style-type: none">Develop and implement a unit guideline for the assessment of discharge readiness and pre-discharge screening.Develop and implement a unit guideline on the management of the transition from hospital to home.	



- Develop information material on different health topics relevant for discharge of preterm born infants for parents.
- Institute regular meetings with physicians and coordinating staff and additionally a discharge meeting with parents.
- Support healthcare professionals to participate in training on the assessment of discharge readiness using a standard guideline as well as on current national vaccination guidelines, including safety and efficacy data of vaccines related to preterm infants.
- Provide at least one coordinating professional, room, and equipment for discharge management.

For health service

- Develop and implement a national guideline on discharge management.
- Define quality markers for discharge care.

Description

Core elements of discharge management are:

- Infant: completion of primary care (including vaccination) and pre-discharge screening in the hospital, organisation of medical care/technical assistance for unresolved medical problems.
- Family: parental education and participation in care procedures and discharge planning, identification of family stressors and risk factors as well as family resources, up-to-date vaccinations including influenza and pertussis boosters of family members (household contacts). In principle, vaccination of mothers during pregnancy could help to protect infants from birth until immunity is induced by active vaccination for pertussis. (5) A study showed that cocooning was accepted by and successfully implemented among postpartum women in the United States. (30) An alternative approach would be to add general adolescent or adult booster vaccination programmes to existing childhood vaccination programmes. Seasonal influenza vaccination of pregnant women is associated with reduced risk for preterm birth and respiratory morbidity in the offspring. (31)
- Community/healthcare system: development of a comprehensive home care plan, involvement of support services, communication with primary care providers and follow-up arrangements to monitor growth and development

Example of a checklist used for discharge management

1. Discharge readiness
 - a. INFANT
 - Oral feeding (breast or bottle) and appropriate growth
 - Maintenance of body temperature in ambient temperature of 22-24°C
 - Respiratory stability without episodes of apnoea and bradycardia (5-8 days following discontinuation of caffeine treatment) (32)
 - Discharge is possible and safe with gavage feeding (33) provided that home care and monitoring is organised and parents trained
 - b. PARENTS
 - Consistent involvement in care procedures



- Competency to provide home care (individual teaching plan – knowledge and skills-completed) (7,23)
 - Counselling (vaccination, safe sleeping environment, household smoking, safe usage of car seat, follow-up visits) complete (3)
 - Home environment prepared (7)
 - On-going family support programme (if available)
- c. COMMUNITY/HEALTHCARE SYSTEM
- Primary care and medical special care physicians informed (1,23)
 - Appointments for follow-up visits arranged and confirmed
 - Written summary of hospital course, recommendations and home care plan (3,23)
 - Additional care givers identified (grandparents, community services)
 - Home care plan in place (special medical equipment, nutrition, medication, home care nursing, follow-up visits confirmed etc.) (1,3)
 - Assistance for financial and community support in place
2. Pre-discharge screening and care procedures
- Completed screening for metabolic/genetic disorders, anaemia and nutritional deficiencies. (3,34,35)
 - Routine screening for retinopathy of prematurity (36)
 - Hearing screening with auditory brain stem response (37)
 - Start full vaccination following chronologic age, consider RSV prophylaxis and influenza vaccination if applicable
3. Parental competencies
- Basic care procedures (washing, nappy change, etc.)
 - Feeding techniques
 - Medication administration
 - Safe sleeping environment (14)
 - Safe car seat usage (18)
 - Special care procedures (e.g. gavage feeding, respiratory treatment, usage of home monitor, suctioning, oxygen) (3,33)
 - Cardiopulmonary resuscitation

Vaccinations

Parents or legal guardians need to ensure that family members/household contacts are up-to-date regarding their vaccinations (e.g. pertussis boosters). Very preterm infants need to be immunised according to the recommended vaccination schedule (see national guideline) based on their chronological age as opposed to their corrected age. Concerns which have caused inadequate or delayed immunisations of preterm infants in the past (e.g., fear of adverse reactions, poor levels of protective antibody responses after vaccinations, lack of adequate muscle mass for injections) have not been found to be valid. (4) Preterm infants generally tolerate vaccinations well and their protective antibody responses are comparable to those seen in term infants. (12) Due to the increased risk of apnoea, bradycardia, respiratory deterioration and suspicion of sepsis in timely association with DTPa-based combined vaccination in extremely preterm infants <28 weeks, it is recommended to administer the first vaccination dose in hospital with a 24-72 h observational period as per national guideline in this most vulnerable group. (38) Subsequent vaccinations should be equally monitored if events occurred during the last vaccination. A detailed



vaccination policy is given in table 1. In addition to that, families need to be well informed about non-specific preventive measures, e.g. use of good hand washing practices and cough hygiene, breastfeeding, and avoiding exposure to smoke, contact with ill persons especially those with respiratory symptoms and unnecessary exposure to crowd.

Table 1: Vaccination policy to be adapted according to specific national guidelines

Infant's age	Vaccination	Route	Notes
6-8 weeks	Diphtheria, tetanus, pertussis (whooping cough), polio, Hib (DTaP/IPV/Hib) + Hepatitis B ¹	i.m.	All infants receive vaccinations as per national guidelines. For infants <28 weeks of gestation: administer first vaccination in hospital and observe for at least 24 hours as per national guideline; consider hospitalisation for subsequent dose if events (apnoea, bradycardia, respiratory deterioration, sepsis work-up) occurred
	Pneumococcal disease (PCV, 13-valent)	i.m.	
	Rotavirus (RV)	oral	
10-12 weeks	Diphtheria, tetanus, pertussis (whooping cough), polio, Hib (DTaP/IPV/Hib) + Hepatitis B	i.m.	see above
	Pneumococcal disease (PCV)	i.m.	
	Rotavirus	oral	
	Meningococcal disease serotype C	i.m.	
14-16 weeks	Diphtheria, tetanus, pertussis (whooping cough), polio, Hib (DTaP/IPV/Hib) + Hepatitis B	i.m.	
	Pneumococcal disease (PCV)	i.m.	
Seasonal	Influenza vaccine	i.m.	Consider annual vaccination before season from age 6 months, particularly in preterm infants with chronic lung morbidity such as bronchopulmonary dysplasia (BPD)
	RSV passive immune prophylaxis	i.m.	Passive vaccination before discharge prior to the RSV season, then to be continued 1x/month during the RSV season for high-risk groups as



			determined by national policy.
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¹ in infants born to hepatitis B carrier mothers give hepatitis B immunoglobulin (HBIG) and hepatitis B vaccination within 12 hours of birth regardless of birth weight

Source

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