



What to Expect Medically for your Baby in the Nursery

By: Marshall J. Benbow, M.D.

By demystifying the medical processes that will occur in the few days your baby is hospitalized we hope you will better able to focus on the joy of childbirth.

The medical procedures routinely performed in the nursery are all aimed at identifying and averting uncommon or rare events that threaten the healthy start to which every newborn is entitled. Many of these procedures have been an accepted part of public health and best pediatric care for more than a generation. Recent developments continue to bolster efforts to see that no subtle or rare condition goes unnoticed only to threaten the health of a young person. Chronologically after the baby reaches the nursery, here is what to expect:

Transition nursery care: After the delivery room, this is the next place the baby will go. If early indicators suggest a problem, this transition may happen in a section of the NICU. If not, then transitional care will take place in the regular newborn nursery. This decision is a fluid one and can change during the observation period, relocating the baby as needs dictate. Vital signs are taken (heart & respiratory rates, temperature, responsiveness to stimuli) in a serial fashion. Each evaluation is important, but perhaps more so are the patterns seen over time. Babies that are exceptionally large or small, unstable or at risk for being unstable due to pregnancy or labor and delivery factors, may need some laboratory findings to clarify these situations. Most of this lab will be blood counts, blood cultures and blood glucose assessments. This and other lab, when warranted, are aimed at a second tier of inquiry about the risk of infection and metabolic factors that could threaten the early health and stability of the newly born baby. As with the vital signs, single values are meaningful, but trends often are more revealing. So if lab is ordered, repeating that lab at a later time is often done.

If there is respiratory distress (mild distress is pretty common), blood oxygen measurements are often done. This will usually be by pulse oximetry measurements much like the mother during labor although there are other methods if needed. At some point a chest X-ray may be ordered and this



would usually be done in the nursery. EKG's, four extremity blood pressures and echocardiography can occasionally be requested in this scenario as apparent newborn respiratory distress can actually be cardiac in origin and may require investigation.

Now, a couple of procedural things will be done in the transitional nursery. Both are part of more than a generation of best pediatric care and public health. Erythromycin ointment will be carefully placed in the newborn eyes to treat gonorrheal infection. Though unlikely perhaps in your baby, the downside of universal treatment is inconsequential and the upside is preservation of normal vision. A vitamin K injection is given in the thigh in this first hour so every baby has the opportunity to develop normal blood clotting. Without this, the potential for bleeding in the first days or couple of weeks as the consequence of labor / delivery or unintentional (dropping / bumping?) trauma is real and can be tragic. For boys facing newborn circumcision, the need is obvious. Again, downside potential is inconsequential and the upside can be lifesaving.

Blood typing is done using cord blood for babies born to type O and Rh-negative mothers. If the Rh-negative mother has an Rh-positive baby, RhoGAM® will be given to the mother by injection before discharge. Blood typing will include another test (Coombs test) to look for blood type induced reasons for heightened probabilities for medically relevant jaundice. If the Coombs test result is positive, a test for jaundice (bilirubin) and blood count (hematocrit) is often done. These early tests can help to predict which babies are likeliest to have medically relevant jaundice so that intervention can begin early when jaundice levels are lower and more easily managed.

The conclusion of transitional nursery care will end a very busy and significant period of medical observation. Medical observation of the baby will now become less frequent as vital signs are to be measured about three times per twenty-four hours. Remember the trends noted in the vital sign measures may seem, but are not trivial. These are part of the validation of health, and conversely can be the early warning system for problems for the baby.

Weights are measured every day and again the value here is both about the individual number and the trends that are observed. Virtually every baby loses weight from birth. The amount varies from one baby to another. It is also true that breast fed babies typically lose more weight than formula fed



babies. The pediatrician will be interested in the absolute amount of weight loss and the percentage of birth weight represented by the lost weight. This is a normal process and generally babies will regain birth weight by seven to ten days following delivery.

For breast-feeding mothers, the lactation consultants will begin to visit in the first twenty-four hours and will often times see mothers and babies during breast feeding experiences each day.

At twenty-four hours into the nursery experience, the baby's first newborn blood screening (pku analysis-old terminology) will be drawn and sent to the state lab in Austin. You will be given a signed doctor's order for the second of these newborn screens to be done as an out-patient between seven and fourteen days of age. Should you misplace this order, we will give you another in the first days in the office. This process has been ongoing for two generations and with the advent of tandem mass spectrometry technology, the last ten years have seen a large number of analyses added for rare, but consequential illnesses. The most common of the disorders screened for is hypothyroidism, affecting approximately one per one thousand births. The rarest of the disorders can be as few as one in a quarter million. Some of the rarest screened disorders can be so uncommon that in a state as populous as Texas, less than one per year among the newborn population will be identified. As unneeded as this may sound, the early identification can lead to early therapy and the injury that medically occurs can be averted with targeted therapy. No matter what you may say about state government, this aspect of state healthcare functions well and adds a great deal to the health of the children of the state. As that sample is acquired, another few drops of blood will be sent to the lab in the hospital to measure jaundice levels (bilirubin analysis). Jaundice, like weight loss, in babies is normal and a nearly universal experience. As with most common issues, the babies at the margin of the normal experience having the most jaundice may benefit from medical intervention. Measuring bilirubin / jaundice levels at twenty- four hours of age allows us to identify which babies are in the highest risk categories for medically relevant jaundice at days four and five when jaundice levels typically peak. Some risk factors for medically relevant jaundice are well known. Those predisposing factors include males, asians, prematures, large or small for gestational age, breast-fed babies, babies with infections, babies with exaggerated weight loss, blood groups different from the mother's blood group and being the sibling of a baby with significant jaundice. Despite all the predictors, jaundice is a somewhat random process. Hence, screening all babies is best to ensure proper care



for all newborns.

Therapy for the jaundiced newborn can be simple or complex. For most babies, simple therapy will be enough. The urban myth that persists is that indirect light through a window will be helpful. In reality, this is not helpful, but will at least not be harmful unless it forestalls the use of more truly helpful modalities. The best therapy for mild jaundice is about hydration, calories and dietary fat in the upper intestine where bile (bilirubin) is deposited for intestinal disposal in stools. In recent years, we've learned that the addition of very modest amounts of fat in formula while waiting for breast milk to arrive can be supplemented and effectively derail an evolving jaundice problem. Once jaundice problems are identified, blood testing to follow trends is important; so more than one test will likely be needed. If early supplementation does not avert the evolving jaundice, phototherapy would be the next level of care. Jaundice will likely peak at day four or five and gradually resolve over the next seven to ten days. In some instances, the jaundice can persist for weeks, be part of the normal experience of babies and pose no harm. Medical surveillance in these situations will be needed, but the degree of needed intervention will depend on the diagnosis, but will not likely be onerous.

Supplementing with formula for medical reasons in the nursery is a relative rarity. As a consequence, formula is not routinely placed in the supply drawers of bassinets for breast-feeding babies in the hospital. Again, the extremes of the newborn experience can be enhanced by medical intervention in what is otherwise the natural experience of childbirth. Most babies will not meet the medical criteria for the use of supplemental formula. So there is less mystery and misunderstanding about this practice, it would be useful to discuss some of the circumstances where medical supplementation of calories via formula would be medically relevant. A chronologic discussion (in the age of the baby) of the probable benefit from the use of supplemental calories follows. In the early hours of life, supplemental calories can be useful if blood glucose homeostasis (maintenance) or core temperature maintenance is in jeopardy. Both can be symptoms of more than one medical challenge for the baby. Special calorie needs and the inability to effectively mobilize calories from stored fat or glycogen can cause or aggravate metabolic distress for the infant. The addition of enteral (gastrointestinal) calories can be dramatic in stabilizing the metabolic needs of a distressed infant and allow that baby to subsequently be and feel well enough to interact with surroundings, parents, and the breast feeding mother and fulfill a vital role in the establishment of a nursing routine



that builds a sound and stable breast milk supply. As time wears on and the twenty-four hour mark is reached, for the babies at the peak of the bilirubin / jaundice issue, as previously mentioned, the providing of five to ten milliliters of formula after nursing for several feedings can effectively diffuse burgeoning problems with jaundice and make far less likely the scenario of being discharged as the mother at two days post-partum, only to discover that the baby may need to stay behind because of the medical issue of jaundice.

At thirty-six to forty-eight hours, if weight loss from birth has exceeded or threatens to likely exceed ten percent of birth body mass, supplementation may provide needed calories and hydration and again stabilize an infant at the margin of the birth experience and give that baby the subsequent ability to be capable of calorie acquisition via breast feeding. As the end of the third day nears, if changes in the breast and breast feeding do not hallmark the arrival and effective transfer of milk from mother to baby, pumping and use of expressed breast milk or formula, if unavailable, may again be just the needed "push" for a baby at the margin of the birth experience. These are the majority of the medical reasons for the use of formula in small quantities, usually for short intervals for the ten to fifteen percent of babies at the "medical margin" of the newly born experience. So the flip side of this conversation would also include the statement that medically, eight-five to ninety percent of newly born infants will not medically need to be supplemented. There will always be the not so "medical" reasons for supplementation. These could reasonably include maternal exhaustion or her medical instability. Factors affecting the mother can be improved by rest of a reasonable nature the decision to judiciously use supplemental formula can be part of this process. One or more members of the family or medical team may speculate the baby is hungry as a reason for irritability and an experiment with formula could be justified. Again, small quantities for a limited duration seem unlikely to present a problem. Words like "always" and "never" are part of language that have little relevance and are seldom helpful in medicine. Using these words as doctors, nurses and parents often gets in the way of the ultimate goal of giving every baby a start in life free of medical jeopardy.

If you are formula feeding by choice, most babies will be started on a formula that is derived from cow's milk and is therefore lactose containing. Vomiting or spitting up of formula in the early hours and days is common. Remember, you are trying to simulate colostrum consumption, so the volume of offered formula should approximate that of colostrum. Bottles provided in the hospital hold sixty



milliliters (two ounces). Colostrum consumption in the first day will be much closer to five to fifteen milliliters per feeding. This will gradually increase in the next twenty-four hours, and by day three when breast milk typically replaces colostrum, formula consumption could exceed an ounce and be pushing for two ounces. Rarely, in the first three or four days would the average or even large baby need more than two to three ounces per feeding. Most babies will nurse or take formula at intervals as frequent as at ninety minutes to three hours in the first days. When there is vomiting in the nursery, it is rarely the consequence of lactose or protein intolerance. Empiric changes in formula may be made, but most vomiting will be a mechanical issue aggravated by too large a volume being offered. Small, frequent feedings will likely be better tolerated.

Between twenty-four hours and discharge from the nursery, there will be more routine procedures for the baby. Hearing assessments are the standard of pediatric care for the last several years. This assessment is usually a covered benefit, but even when rarely not, is a justified expense. Quite a few babies will fail to achieve a "normal" result on the initial screening. Subsequent screening the next day or a few days later as an outpatient will usually resolve this issue favorably. Remember the overall risk ratio is about one per thousand. What we've learned over the years is that in the moderate or more severely hearing impaired infant, hearing enhancement needs to be effectively in place by six months of age or life-long language and speech processing difficulties will be the likely outcome. The window of opportunity for ideal outcome is narrow and early identification is essential in this effort.

Pulse oximetry measurements after twenty-four hours of age to look for subtle cardiovascular disease is another area where recent medical advances have made this part of the pediatric standard of care. Discovery of cardiac problems by this modality is uncommon, but it is non-invasive, quick and painless. As always a favorable outcome is facilitated by early discovery as a non-emergent approach to care could be the more likely outcome if this sort of issue is discovered before hospital discharge rather than after discharge.

If you have a baby born at less than thirty-seven gestational weeks, a car seat positioning study will be done before discharge. This test using the infant's car seat (so you'll need to bring this into the hospital) is done to assure that these youngest babies will safely preserve their airway when placed in the car seat.



If you have an infant boy and you want circumcision to be performed, this will usually be performed on the second day. This is usually for the logistical reasons of getting permits signed and the procedure explained to the parents. This is largely a cosmetic procedure and the decision to do this should have been made long before the birth of the baby. The medical rationale for this is largely about hygiene and diminishing the risk of urinary tract infection. All the members of our pediatric group will use injectable lidocaine for pain mitigation. Additionally, oral sucrose solution will be used for further pain relief before and during the procedure. Acetaminophen is customarily administered for up to twenty-four hours after the procedure. Beginning a day or two after the procedure, a scab will begin to form. It will have a white to slightly yellow hue, will faintly resemble a layer of pus, will peak on day four or so and then begin to resolve. Significant redness extending up the shaft of the penis is not expected and should be examined. Infection post operatively is an exceedingly rare event. Full recovery will usually take about ten days. Use antibiotic ointment the first two days at home and then switch to petroleum jelly (Vaseline) for the duration till healing is complete. Refrain from using creams on the healing circumcision. Keep the penis "greasy" with ointment so application at most diaper changes will be needed.

This discussion, though as inclusive as it can be, will leave out certain matters. These would include naming the baby and transmitting that information to the hospital's representative. Paying for the hospital care would be expected. The myriad of well-wishers will be a continuum. All that well wishing should not come at the expense of adequate rest for a young family. Fatigue is a key interfering factor with the establishment of breast-feeding. The old mantra "eat well, drink well and rest well" could hardly be better advice than in early days in and home from the hospital with a newly born baby. Remember the visitors will represent potential illness exposure. Visitors should be healthy and hand wash before contact with you and the baby. Limiting access is clearly your privilege.

At the end of all of this, the pediatrician making rounds the last day of your baby's hospital stay will almost certainly tell you we'd like to see the baby two days following discharge. The timing of this visit might be one day or three, but that would be an individual determination as the customary visit is two days after discharge. This visit is essential to continue the observation of weight loss, jaundice and the early provision of calories.



Remember to encourage frequent newborn feedings. No less than eight feedings and often times more per twenty-four hours will be needed to assure adequate intake. Output in the newborn diaper will change to reflect the improving nutritional status of the baby. Breast milk usually arrives a few hours short of seventy-two hours. This can be a bit delayed in mothers with elective C-sections who did not labor or in mothers leaving the hospital with significant pain or medical issues. The diapers will begin to have yellow stools on day four to five after delivery (not after hospital discharge) and urine production should change from a trickle in the hospital on day two to three to a flood by day four to five (after birth not hospital discharge). The baby will usually look yellow and have some yellow to the whites of the eyes as jaundice is typically peaking at about this time. It's very difficult to be precise about all of this, hence the medical necessity for that visit two days following hospital discharge. If at home you have concerns you feel should not wait till the second post discharge day, please call the office and schedule an appointment. We'd always rather see a baby too soon than too late.