# Three Options for Standardizing MedArts' BPD Care

for

**Jamie Landis**
**President**
**TriCounty MedArts**

by

**Pat Wachovia**
**Executive Vice President**
**TriCounty MedArts**

March 2016

## BRIEF INTRODUCTION

Bronchopulmonary dysplasia (BPD) is a lung disease affecting newborns that ranges in severity and requires intensive multispecialty hospital care. First identified in the late 1960s, BPD commonly occurs with use of assisted ventilation systems in infants, especially those born prematurely.

The MedArts system currently has three regional hospitals that treat BPD: Longworth Pediatric Hospital (LPH), Fairfax Medical Center (FMC), and Rivershore District Regional Hospital (RDRH). While each facility possesses adequate staff and equipment, staff specializations differ from hospital to hospital. This decentralized structure is contributing to varying quality of care and medical outcomes across MedArts facilities, particularly for more severe cases of BPD. As the Executive Vice President of MedArts, I researched potential options for improving the care of BPD patients, as requested by MedArts' President Jamie Landis and the MedArts board of directors. The goal of this report is to present each option, evaluate them based on important criteria, and recommend a course of action for MedArts.

This report proposes three options for BPD care. Option One includes keeping the current decentralized structure except that key medical specialists at LPH (pediatric cardiologists, pediatric pulmonologists, and infectious disease specialists) are required to travel to to FMC and RDRH to consult with patients. Option Two also includes keeping the decentralized structure and proposes installing state-of-the-art telemedicine systems at each facility to accommodate online doctor consultations and visits among the three hospitals. Option Three considers creating one large centralized BPD Unit that is fully-equipped and fully-staffed at LPH only.

To determine the effectiveness of each of the three above-mentioned options, this report will examine their effects on the following criteria:

Quality of Care
Medical Outcomes
Overall Costs
Staff Expectations
Effects on the BPD Patient's Families

The benefits of improving our BPD care across these three hospitals are numerous. First and foremost, we have the opportunity to improve the way we provide care to our most vulnerable patient population: newborns. By improving BPD care, MedArts stands to become one one of the premier medical facilities for these patients. This process will also highlight where resources can be better allocated, cutting payroll costs, equipment costs, travel expenses, and more. Standardizing our BPD care could potentially improve the lives of everyone involved including patients, their families, and our staff.

## BRIEF DISCUSSION OF METHODS

I chose the above criteria based on a number of resources. I examined recent data concerning hospital performance related to BPD and received feedback from board members. I also obtained comments from the newborn intensive care unit (NBICU) caregivers at each hospital and feedback from past BPD patients' families. Also referenced are a brief fact sheet about BDP and a summary of BPD treatment protocol in our current MedArts system.

When considering staffing, I researched competitive salaries for various hospital roles using Salary.com. I also researched the costs of telemedicine systems (Ergotron.com) as well as funds for such systems through government grants from the U.S. Department of Agriculture (rd.usda.gov).

There are limits to the resources used in creating this report. Further input from the affected staff should be obtained, specifically from the more specialized roles only filled at LPH. Additionally, a full review of the effectiveness of telemedicine in NBICU has not been completed. Further research is required to determine which brands of hardware and software would be a good fit for MedArts.

## EXTENSIVE DISCUSSION OF FINDINGS

**OPTION ONE**: MedArts should keep its current decentralized structure, and require key staff at LPH (pediatric cardiologists, pediatric pulmonologists, and infectious disease specialists) to travel to to FMC and RDRH to consult with patients.

> **Quality of Care**: Currently, LPH is the only hospital of the three in this report that has enough staff for patients who require multispecialty care. This is also the only facility that has a separate BPD Unit that does not share staff with the NBICU. Because the staff varies between hospitals, in order to improve the quality of care, Option One requires sending key staff to both FMC and RDRH to consult with patients. The staff not present at these two hospitals are pediatric cardiologists, pediatric pulmonologists, and infectious disease specialists. The role of these positions would change, requiring these staff members to travel between facilities to consult with all patients across MedArts. By reallocating our staff resources, MedArts would standardize, and therefore improve, BDP care across all facilities.
>
> **Medical Outcomes**: Medical outcomes would improve should MedArts spread the key staff across all three hospitals. By sharing our medical knowledge between hospitals, each facility benefits from one another. By standardizing our treatment of BPD, MedArts would be better able to identify problems with treatment protocols, enabling them to solve them more efficiently.
>
> **Overall Costs**: The costs of Option One are significant. LPH is currently looking to hire a fifth pediatric pulmonologist. This hire is essential if Option One is to provide sufficient care to LPH's existing patient load. According to Salary.com, the average annual salary for an mid-tier pediatric pulmonologist is $242,000. Factoring in the cost of employment taxes and benefits, which is 30% of the base salary, this cost would be closer to $314,600.

This option may also require additional hires in the future, should the travel be too much for our current pediatric cardiologists and infectious disease specialists. However, the BPD Unit at LPH is frequently not full, which is a waste of precious time and resources for the three positions in question. This would lower the risk of needing to potentially hire new staff going forward.

Another cost would be travel expenses for the staff members required to consult. Requiring one specialist to travel to all three hospitals twice a week would cost approximately $9720 (180 miles x (2 days/week) x (50 weeks) x ($0.54/mile) = $9720). This makes the total annual cost for hiring a new pediatric pulmonologist approximately $324,320.

**Staff Expectations**: This option would negatively affect staff expectations and potentially cause friction among staff members between hospitals. Requiring the above mentioned physicians and specialists to travel for consultations would be a shift in job expectations and may affect retention. This would also cause problems regarding chain of command concerning who the primary care physician is at each hospital. At LPH, the pediatric pulmonologist oversees each patient's care, while neonatologists and pediatricians provide primary care at FMC and RDRH. These issues are not unresolvable, but could potentially linger for months after the change is made.

**Effects on BPD Patients' Families**: There would be little effect on patients' families at each location. Patients would not move even if they have a severe case of BPD, making it simpler for parents to visit their infants in the hospital. However, parents at FMC and RDRH would still not be eligible for grant funding to cover medical costs like the families at LPH. Ultimately, Option One does not improve the effect of BPD care on families, but it does not worsen it either.

**OPTION TWO**: Keep the decentralized structure and install 12 state-of-the-art telemedicine systems at each facility to accommodate online doctor consultations and visits among three BPD Units.

**Quality of Care**: Option Two would improve the quality of care because specialists would be able to consult with patients at each location. However, this is largely based on finding the right telemedicine systems to provide the best possible care. These systems would not completely eliminate the need to travel between hospitals; doctors would still need to consult in person on occasion.

While the care would not be as personal, hospitals would interact and share treatment information and procedures, causing BPD treatment protocols to be more streamlined across all three hospitals. The quality of care may be affected while the staff is trained; a slow rollout with high-quality training is essential. Change in quality of care would not be immediate.

**Medical Outcomes**: Option Two would improve Medical outcomes, assuming that the telemedicine system we choose is implemented smoothly. Much like the quality of care, medical outcomes could be affected initially while staff is training. Ultimately, the outcomes would improve because because treatment plans would be shared among physicians. The stress of relocating on severe patients would also be eliminated.

**Overall Costs**: The cost of adding these systems would be significant compared to changing nothing, but not as much compared to Option One. A well-equipped telemedicine station with required software costs an average of $5000 (Ergotron SV44 equipment line, Ergotron.com). Installing at least four telemedicine stations at each hospital would cost $60,000. Technical support is often included, as is one-on-one training. While this cost is not nominal, it is significantly less than hiring a fifth pulmonologist at LPH. Additionally, all three hospitals would be eligible for federal telemedicine grants offered through the U.S. Department of Agriculture. Obtaining funding has the potential to make Option Two cost very little.

**Staff Expectations**: While doctors would not need to travel as much between hospitals, it would still be necessary on occasion. Extensive training would be required for all staff across all three hospitals. Nurses would need special training to operate the telemedicine stations and equipment in lieu of the doctors, and each time new staff was hired they would need training as well. Medical practitioners who are averse to technology would require much convincing to work with telemedicine stations.

**Effects on BPD Patients' Families**: Installing telemedicine systems would positively affect parents by reducing the need to transfer severe patients to LPH. The systems also include small cameras that are securely connected online. Parents can log into an online system and watch their child when they cannot be in the hospital. Most systems also allow for remote visits once the patient has returned home, where specialists can check their progress without having to go anywhere.

**OPTION THREE**: The third option considers creating one large centralized BPD Unit that is fully-equipped and fully-staffed at LPH only.

**Quality of Care**: Option Three is the ultimate choice when it comes to standardizing BPD care, and it would greatly improve the quality of care for patients. BPD treatment protocol would be streamlined and standardized by treating patients using the same methods and procedures at one centralized location. The BPD Unit at LPB would be fully-equipped and fully-staffed with all necessary physicians and specialists, allowing MedArts to pool its knowledge and resources for the benefit of all BPD patients.

**Medical Outcomes**: Option Three also improves medical outcomes. Patients would receive in-person treatment from the best physicians and specialists. Centralizing BPD care at LPH would make multispecialty care for severe BPD patients simpler. Option Three also eliminates the stress of patient transfers. There is some research on the benefits of regular visits on the patient from family; because some families would need to travel further to see

their infant, this might decrease visits for certain patients. This effect would need to be monitored closely to ensure that supports are in place for the patient and the family.

**Overall Costs**: Option Three requires significant one-time costs, however, it also opens the door for potential savings. Expanding the BPD Unit at LPH would require approximately $300,000. This cost includes moving costs of shipping equipment from RDRH and FMC to LPH, as well as expanding the existing space to accommodate are larger patient load. The current BPD Unit would not need to be tripled in size since LPH often has fewer patients than it can accommodate. No new hires would be necessary, since MedArts would relocate some staff from FMC and RDRH to LPH. There is even the potential for eliminating certain positions, thereby cutting payroll costs.

**Staff Expectations**: Option Three would negatively effect on staff regarding expectations. Each hospital's staff has expressed a strong preference for continuing to provide BPD treatment. Not only would staff lose their BPD Units, but there would also be potential layoffs if all staff is not needed at LPH. However, layoffs would be minimal since LPH is the only hospital with separate BPD Unit staff, and FMC's and RDRH's BPD staff would continue working the their respective NBICUs. With Option Three, MedArts would run the risk of losing staff who do not wish to practice at LPH.

**Effects on BPD Patients' Families**: This option has the most negative effect on BPD patients' families. Parents would travel significantly more to see their children, even those with less severe BPD cases. Option Two would also provide a financial hardship for many families traveling long distances to LPH. However, all families would be eligible for funding to cover medical expenses through donations provided by the Giving Parade and Spare Change for Children. There is also a Ronald McDonald House located near LPH. Ronald McDonald House Charities provides accommodations for families with sick children who must travel long distances to get medical care. BPD patient families who are more than two hours away could temporarily relocate during their child's care, costing them less in travel expenses between home and the hospital, while also saving them precious time.

## BRIEF CONCLUSION AND RECOMMENDATION

All three options would improve the quality of care and medical outcomes among patients. Option Three has the potential to improve these criteria the most by provided standardized care at a central location. With regard to costs, Option Two has the potential to be the most cost-effective option, should LPH be able to obtain federal grant funding for the telemedicine system. However, if it does not obtain this funding, Option Three is the most cost-effective choice. As far as the effects on staff at MedArts, all three options would require a change in status quo. This means the best option is the one that minimizes the disruptions of the proposed changes. Options One and Three would disrupt the staff by changing their job locations, the nature of their role, and even the existence of each position. Therefore, Option Two has the least disruptive effect on staff. Finally, when looking at the effect on the families of BPD patients, it is important to balance disruptions with added supports. Options One and Two have little to no negative effect on families compared to the current structure. In fact, Option Two has the potential to improve each family's experience through off-site

video monitoring of their child. Option Three has the largest effect on travel costs and stress, but also has the potential to be the most helpful with providing families financial aid for medical expenses.

Each of the options has the potential to improve BPD care for MedArts. While the quality of care and medical outcomes are the most important criteria, the others were examined for a reason. MedArts has always valued all people involved: the patients in need of our care, their families in need of support, and our top-tier staff who make our regional health organization one of the best in the state. I believe that MedArts goal is to find a balanced approach that values all of the people involved.

With this in mind, I am recommending Option Two as the best solution. By installing state-of-the-art telemedicine systems to connect all three hospitals, we would balance the needs of patients, families, and staff. While Option Two presents a learning curve with the staff, a slow roll out gives MedArts the opportunity to proceed carefully and deliberately. Research and input during the process would be essential to making Option Two successful.

Should decisions-makers agree with my recommendation of Option Two, the next step is researching telemedicine systems. Physicians, specialists, and nurses at each facility should provide input on which tools are essential to providing care to their patients. An in-depth review of the effectiveness of telemedicine systems is essential to making this option a reality. Since I already started preliminary outreach with a few telemedicine system manufacturers, I am happy to share my contacts and assist in the research process in any way I can.