

## Background

Pediatric patients who are dependent on central venous catheters (CVC) for administration of total parenteral nutrition (TPN) often experience multiple admissions to the hospital for infections and other line complications. These admissions are costly, with one study reporting attributable costs of \$55,000 per admission for central line-associated blood stream infections, and they also represent a significant risk to this vulnerable group of patients.

At Children's Hospital Los Angeles, the parents/guardians of all patients with a new CVC attend an introductory class in the hospital's Family Resource Center. Despite the success of this class, we have continued to have frequent readmissions for TPN-dependent patients, including 189 inpatient days for 58 patients over a 6-month period in 2016 and a rate of 3.07 infections per 1000 outpatient days. The need for further education in the form of an advanced class was identified.

## Developing a Team

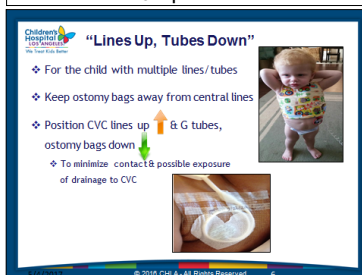
An interdisciplinary team was convened to develop the curriculum for the class. Members included a social worker, a child life specialist, an occupational therapist, a physician, a CVC nurse consultant, and a clinical nurse/family educator. Family caregivers who have been successful in preventing CVC complications were consulted to provide insights and tips.

## Project Vision

- Better support for families caring for CVCs at home
- Increased family satisfaction
- Standardized education for CVC care throughout the facility
- Reducing admissions for line infections/complications



### Sample slide



### Pre-Survey Advanced Central Venous Catheter (CVC) Care Class

These questions are about your child's central venous catheter. We want to know a little bit about your child's CVC and some of the challenges that you have as you take care of the line at home. Please answer the following questions.

1. CVC issue brought you to the hospital this admission?  
Infection \_\_\_\_\_ Line dislodged \_\_\_\_\_ Line clogged \_\_\_\_\_ Other \_\_\_\_\_
2. How many times have you been admitted to the hospital for line problems in the past year?  
\_\_\_\_\_
3. What issues are the most difficult for you at home (may choose more than one)?  
Dressing changes \_\_\_\_\_ Keeping dressing in place \_\_\_\_\_ Keeping line secured \_\_\_\_\_  
Line clogging \_\_\_\_\_ Connecting PN or other fluids \_\_\_\_\_
4. How often do you change the central line dressing?  
\_\_\_\_\_ If more often than once weekly, what is typically the reason for the change? \_\_\_\_\_
5. How confident are you about doing the CVC dressing change at home?  
Very confident \_\_\_\_\_ Confident \_\_\_\_\_ Neutral \_\_\_\_\_ Not very confident \_\_\_\_\_ Not at all confident \_\_\_\_\_
6. How confident are you about doing the CVC cap change at home?  
Very confident \_\_\_\_\_ Confident \_\_\_\_\_ Neutral \_\_\_\_\_ Not very confident \_\_\_\_\_ Not at all confident \_\_\_\_\_
7. How confident are you about keeping the line from clogging at home?  
Very confident \_\_\_\_\_ Confident \_\_\_\_\_ Neutral \_\_\_\_\_ Not very confident \_\_\_\_\_ Not at all confident \_\_\_\_\_
8. How confident are you about connecting fluids/PN/medications at home?  
Very confident \_\_\_\_\_ Confident \_\_\_\_\_ Neutral \_\_\_\_\_ Not very confident \_\_\_\_\_ Not at all confident \_\_\_\_\_
9. Do you have any particular issues you would like to discuss in today's class?  
\_\_\_\_\_
10. What type of CVC does your child have? \_\_\_\_\_ Broviac \_\_\_\_\_ Hickman \_\_\_\_\_ PICC \_\_\_\_\_ Other \_\_\_\_\_
11. Why does your child need a CVC? \_\_\_\_\_ PN/Lipids \_\_\_\_\_ Chemotherapy \_\_\_\_\_ Fluids \_\_\_\_\_ Other \_\_\_\_\_
12. Who takes care of the CVC at home?  
\_\_\_\_\_
13. Number of people in household?  
\_\_\_\_\_
14. Race/ethnicity:  
Hispanic/Latino \_\_\_\_\_ American Indian/Alaskan Native \_\_\_\_\_ Black/African American \_\_\_\_\_  
Native Hawaiian/Other Pacific Islander \_\_\_\_\_ White \_\_\_\_\_ Asian \_\_\_\_\_ Other \_\_\_\_\_



## Clinical Intervention

The team identified a need to provide interdisciplinary support for families experiencing CVC-related readmissions, including line care education reinforcement, tips on managing the line as the child grows, and hands-on practice with dressing changes and associated line care. Each discipline within the team provided a short, videotaped segment that can be used as appropriate by the in-person nurse facilitator. Classes will be offered weekly through the Family Resource Center, and parent volunteers will serve as coaches in the classroom.

## Implementation & Evaluation

A pilot session of the class was conducted in March 2017. The 4 parent participants validated the usefulness of the video clips and time for hands-on practice, and expressed support for having experienced parents in the classes to provide peer support. Pending IRB approval, participants in the class will participate in a pre/post assessment with an investigator-designed survey that evaluates parent confidence with CVC care. The post-class assessment will be completed approximately one week after discharge. Readmission rates for line complications will also be tracked.

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