



BRIDGE Program: Identification of Homecare Errors in High Risk Infants

Rupalee Patel, DNP(c), MS, C-PNP, IBCLC
Adebola Olarewaju, MS, C-PNP, RNC
Carley Goldberg, MS, C-PNP

We have nothing to disclose.

Thank You

- ◇ Patients and their families for allowing us into their lives and homes.
- ◇ SCVHHS Administration, NICU multidisciplinary team, Ambulatory Care Pediatric providers and Public Health staff for their hard work, dedication, and willingness to embrace the BRIDGE program.
- ◇ First 5 Santa Clara County and VMC foundation for ongoing support.

Our Team & Our Mission

♥ Pediatric Nurse Practitioners who manage transitional care of medically fragile infants and their families.



♥ We strive to provide safe, compassionate, family centered, evidence based, quality, cost effective, preventative home care while bridging the gap between the Neonatal Intensive Care Unit, the patients home and Ambulatory Care Pediatrics.

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Objectives

1. The audience should be able to know what constitutes a homecare errors and a healthcare utilization error.
2. The audience should be able to understand the rate of homecare errors and healthcare utilization errors in the high risk population visited by the Santa Clara Valley Medical Center (SCVMC) BRIDGE program pediatric nurse practitioners.
3. The audience will be able to understand the potential risks to the high risk infant with regard to the homecare and healthcare utilization errors.



Influential Reports

- 1999** IOM *To Err Is Human: Building A Safer Health System*
- 2001** IOM *Crossing the Quality Chasm: A New Health System for the 21st Century*
- 2006** IOM *Preventing Medication Errors*
- 2013** IHI *How-to Guide: Improving Transitions from the Hospital to Community Settings to Reduce Avoidable Re-hospitalizations*

IOM (Institute of Medicine)
IHI (Institute of Healthcare Improvement)



Current Literature

- Pediatric Literature Review:
 - 2013 Walsh, et al. *Medication Errors in the Home: A Multisite Study of Children with Cancer*
 - 2013 Walsh, et al. *Using Home Visitation to Understand Medication Errors in Children*
 - 2013 Samuels-Kalow, et al. *Parental Language and Dosing Errors after Discharge from the Pediatric Emergency Department*
- Neonatal Literature Review:
 - none found

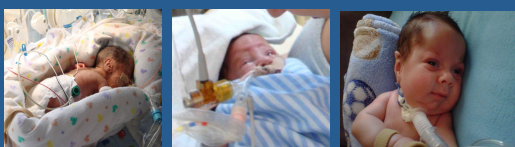


Definitions

- Medical Error: the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim (IOM 1999)
- Homecare Error: a deviation from prescribed plan of care upon discharge from the hospital that occurs in the patient's home
- Healthcare Utilization Error: deviation, misuse or absence of a prescribed plan upon transition from the hospital to the home, including referrals, follow-up appointments and urgent and emergent care services



The BRIDGE Program



Creating relationships with vulnerable babies and their families in the Neonatal Intensive Care Unit and optimizing medical care transitions into their home.

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BRIDGE Timeline

2011

- BRIDGE program established at SCVMC
- Primary identification of home errors in eligible HRIF patients

2012

- Acquired additional PNP
- Similar home errors were identified in eligible IND patients

2013

- Acquired additional PNP
- Similar home errors were identified in eligible NICU → MICC patients

2014

- Ongoing identification of home errors
- Refinement of data collection processes

HRIF: High Risk Infant Follow-up IND: Infant neurodevelopment
NICU: Neonatal Intensive Care Unit MICC: Maternal Infant Care Center

SCVMC CPQCC-CCS HRIF linked referrals 2011

HRIF category	N infants	Infants referred	% referred
VLBW ≤ 1500 g	42	41	97.6
ELBW <1000 g	13	12	92.3
GA < 28 weeks	13	12	92.3
HIE (moderate to severe) with cooling	6	6	100
Infants referred for any of the reasons above	48	47	97.9
Additional Infants with gestation age 28-31 weeks	6	6	100
Infants referred for any of the reasons above	54	53	98.1
CPQCC infants referred for other reasons		19	
All referrals		72	

SCVMC CPQCC-CCS linked HRIF referrals 2012

HRIF category	N infants	Infants referred	% referred
VLBW ≤ 1500 g	34	34	100
ELBW <1000 g	10	10	100
GA < 28 weeks	13	13	100
HIE (moderate to severe) with cooling	4	4	100
Infants referred for any of the reasons above	38	38	100
Additional Infants with gestation age 28-31 weeks	5	5	100
Infants referred for any of the reasons above	43	43	100
CPQCC infants referred for other reasons		13	
All referrals		56	

SCVMC CPQCC-CCS linked HRIF referrals 2013

HRIF category	N infants	Infants referred	% referred
VLBW ≤ 1500 g	38	38	100
ELBW <1000 g	20	20	100
GA < 28 weeks	19	19	100
HIE (moderate to severe) with cooling	6	5	83.3
Infants referred for any of the reasons above	44	43	97.7
Additional Infants with gestation age 28-31 weeks	9	9	100
Infants referred for any of the reasons above	53	52	98.1
CPQCC infants referred for other reasons		12	
All referrals		64	

BRIDGE Home Visit Empower Educate Encourage

- Address caregiver questions and concerns
- Review of Medical History
- Review of Systems
- Review of medications, feeding, equipment
- Comprehensive Physical Exam
- Anticipatory Guidance
- Health Care Maintenance
- Explanation of upcoming appointments
- Target Education related to Errors
- Prescriptions
- Referrals
- Scheduling Appointments



Population of Interest

- Infants born from January 2011 to December 2013 who met CCS, HRIF eligibility and had one BRIDGE visit after NICU discharge.
- Of 186 high risk infants in 181 homes visited, 69% (128/186) were born before 32 weeks gestation or birth weight \leq 1500 grams. Nine percent (16/186) had hypoxic ischemic encephalopathy, and 23% (42/186) had other admission diagnoses.

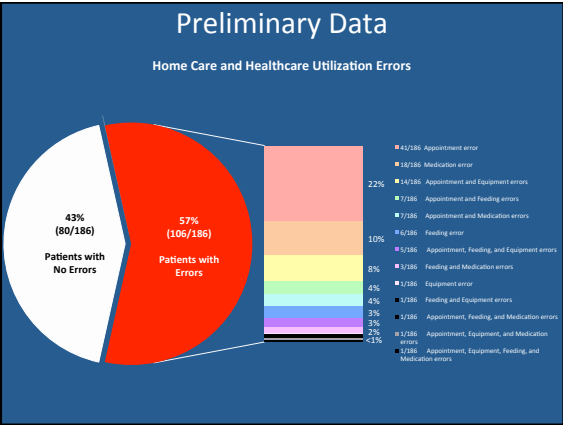
CCS: California Children's Services

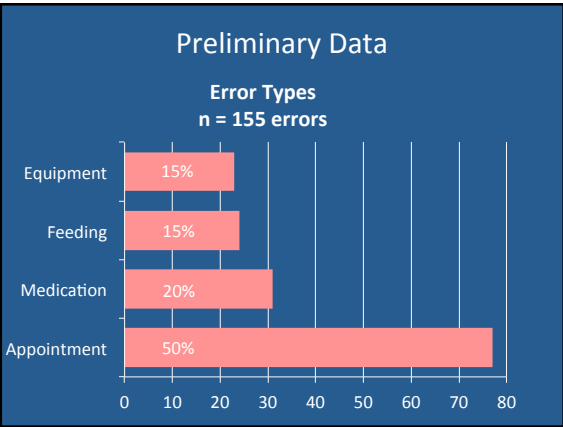


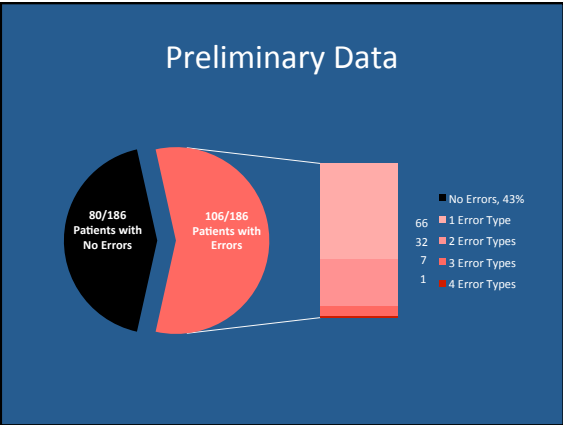
Process

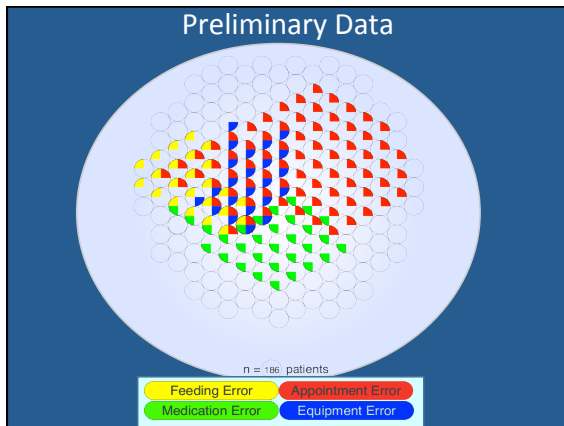
- Identification of eligible participants
- Data collection and entry completed by PNPs on the day of the visit
- Data validation by review of medical records
- Data Analysis



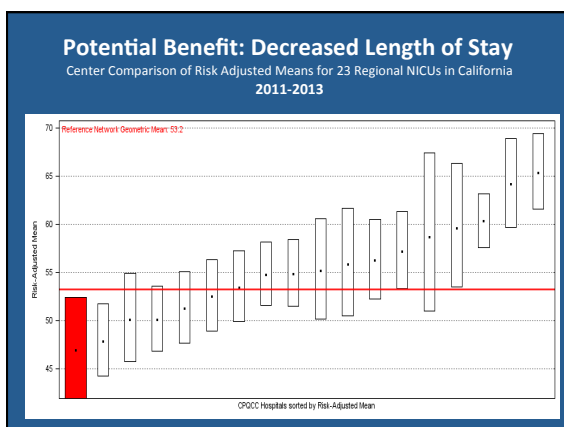








- ### Potential Risks for Patients
- Homecare Errors :
 - Re-hospitalization
 - Medication overdosing or under-dosing
 - Misuse of equipment leading to health sequelae
 - Fortification Errors
 - Electrolyte imbalance
 - Failure To Thrive
 - Healthcare Utilization Errors:
 - Inappropriate use of the emergency room or urgent care
 - Missed primary care and specialty care appointments



Potential Benefit: Decreased Length of Stay at SCVMC NICU

Comparison between epochs pre-BRIDGE and post-BRIDGE


	Number of babies*	Median LOS (days)	Mean LOS (days)
2008-2010 (pre-BRIDGE)	135	53.9	64.8
2011-2013 (post-BRIDGE)	134	48.8	57.9
Difference		5.1	6.9

*babies < 1500 grams birth weight and < 32 weeks gestation at birth

IHI Triple Aim

New designs must be developed to simultaneously pursue **three** dimensions:

- 1) Improving the patient experience of care.
- 2) Improving the health of populations.
- 3) Reducing the per capita cost of health care.



Reflection

- Extending care into the home post hospitalization is essential to identify and address the significant challenges patients and families face during care transitions.
- Collection of data provides opportunities to analyze and address errors and develop additional interventions to improve quality of care and overall health.



Personal Experiences



Questions



El Fin!