2023

Sick Day Plans for Pediatric Home Health to Reduce Unplanned Hospitalizations:

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Sick Day Plans for Pediatric Home Health to Reduce Unplanned Hospitalizations:

Review of Literature

BY

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A paper submitted in partial fulfillment of the requirements for the degree

Doctor of Nursing Practice

South Dakota State University

2023

SDPs for Pediatric Home Health to Reduce Unplanned Hospitalizations

This Doctor of Nursing Practice (DNP) Project is approved as a credible and independent investigation by a candidate for the DNP degree and is acceptable for meeting the project requirements for this degree. Acceptance of this DNP Project does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

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Acknowledgements

I wish to acknowledge the assistance of those who have supported and guided me through this project as well as throughout my completion of the Doctor of Nursing (DNP) degree. To Dr. Cynthia Elverson, Dr. Jack Mayeux, and Dr. Brandi Pravecek who supported me through the process of this project and well as my committee members. I would also like to thank Brittany Zwak who was a key stakeholder for this project. Thank you to Scott, Karla, Holly, Kelsey, and Ted who encouraged me never to give up through my journey towards a doctoral degree; and give me support and inspiration.

Abstract

Introduction: Children living with chronic conditions or long-term invasive devices including tracheostomies and ventilators are uniquely vulnerable to infection and have high rates of emergency room (ER) visits and hospital admissions. Recurrent respiratory infections hold risks including long-term antibiotic use and vulnerability to sepsis. Home health nurses can use assessment skills to identify when a client is showing signs of illness and provide interventions as directed by the client's plan of care to reduce symptoms of illness and prevent ER visits and unplanned hospitalizations.

Evidence Summary: Children living with chronic conditions requiring home healthcare are often at risk for respiratory tract infections leading to unplanned ER visits and hospitalizations. The use of a sick day plan (SDP) composed of nursing assessment and respiratory interventions including increased suctioning, medication administration, chest physiotherapy, and home oxygen therapy can improve nursing perception of acceptability, appropriateness, and feasibility, and reduce ER visits and unplanned hospitalizations for pediatric home health clients.

Gaps: There is a lack of recently published literature focusing on use of SDPs to prevent unplanned hospitalizations and ER visits in pediatric home health clients**.**

Recommendations for Practice: Implementing SDPs may help nurses identify acute signs of illness and guide nurses in choosing respiratory interventions for pediatric home health clients. Respiratory intervention guidance offers prompt supportive care to help reduce symptoms and can potentially reduce hospitalizations.

Keywords: pediatric home health, respiratory interventions, hospitalization, home oxygen therapy, chest physiotherapy, nebulizers

Sick Day Plans for Pediatric Home Health to Reduce Unplanned Hospitalizations

Introduction

Children living with chronic conditions or long-term invasive devices including tracheostomies and ventilators are uniquely vulnerable to infection (Soto et al., 2016). Many children utilizing home health services have chronic respiratory conditions that require technology dependence. Children residing in rural areas often face limited access to healthcare services, which can present challenges for families of medically complex children. Home health nurses play a vital role in the continuity of care for these children and their families by executing the child's plan of care. Nurses use their assessment skills and identify when clients are showing signs of illness in their vital signs, behavior, and overall appearance. Home health nurses facilitate safe and effective care and allow families and children to continue care in their home (Estrem et al., 2020).

A sick day plan (SDP) is a tool that can be included in the patient's plan of care for nurses to use when the child is showing signs of illness. The SDP format was adapted from action plans; therefore, the term action plan and SDP will be used interchangeably. The tool's structure includes a traffic light configuration (green, yellow, red) that differentiates between mild, moderate, and severe symptoms (Coller et al., 2018; Davis & Fitzmaurice, 2021). Each zone includes suggestions for interventions based on the client's standing orders. The nurse can use this plan to guide clinical decisions when the client is showing signs of illness. Utilizing a SDP for home health pediatric patients can help nurses identify the signs of illness early and help prevent or manage symptoms for the child living at home (Coller et al., 2018). A SDP can give nurses confidence and support to help them make the right decisions based on the client's objective and

subjective data (Lakupoch et al., 2018). Early identification and intervention can potentially limit disease progression and reduce hospitalizations (Soto et al., 2016). The SDP can help guide nurses to identify when the client is showing signs of illness through assessment and prompt the nurse to perform respiratory interventions to reduce unplanned hospitalizations among these clients (Coller et al., 2018). Assessment components, including but not limited to the child's appearance, work of breathing, skin color, secretions, activity, abnormal breath sounds, accessory muscle use, and nasal flaring prompt the nurse to open the SDP and perform the respiratory intervention ordered by the client's primary provider. Interventions may include as needed medications, nebulizers, home oxygen therapy, chest physiotherapy (CPT), and suctioning. The goal of the SDP is to reduce emergency room (ER) visits and hospitalization through prompt intervention by nursing staff.

Clinical Question

The PICOT question that guided this literature review is as follows: In pediatric home health patients with a respiratory diagnosis and their nurses (P), how does the creation and implementation of a sick day plan (I) compared to the current practice of no SDP (C) affect emergency room visit rates, unplanned hospital admission rates, and nursing perception of acceptability, appropriateness, and feasibility of the tool (O) over 3 months (T)?

Methods

A literature search was completed in CINAHL, PubMED, and Cochrane databases using the following keywords: *pediatric home health, infection prevention, SDPs, home health infection prevention, hospital readmissions.* Inclusion criteria

included peer-reviewed articles published between 2015-2022 and written in the English language. Exclusion criteria included articles with a low-quality rating or those articles not relevant to the project. Seventy-five abstracts were reviewed in the database research. Thirty-five articles were retrieved and reviewed due to relevance to the project; the rest were excluded due to lack of relevance to the project. A total of 18 articles met the inclusion criteria, were utilized for this literature review, and were compiled into an evidence table (see Appendix A). The Johns Hopkins Nursing Evidence Based (JHNEBP) Model (see Appendix B) was used to assess and grade the articles. The articles were graded as follows: two level 1, one level 2, five level 3, three level 4, seven level 5. Seven were grade A quality and eleven were grade B quality. The evidence table was used to determine themes for this literature review.

Evidence Summary

Themes in the literature included medical complexities, home health, readmission, SDPs including asthma action plans and seizure action plans, nursing assessment, suctioning, nebulizer therapy, CPT, and home oxygen therapy.

Respiratory Support, Home Health, and Readmission

Children with chronic respiratory conditions requiring respiratory support have the highest rate of hospital readmissions (Borges et al., 2020; Gay et al., 2016; O'Brien and Dumas, 2020). O'Brien and Dumas (2022) conducted a retrospective cohort analysis involving 48 children utilizing mechanical ventilation who were discharged from a post-acute care hospital. Approximately 22% of the children experienced readmission to the hospital. Of these readmissions, 61 (62%) occurred between 0 and 30 days and 38 (38%) between 31 and 90 days after discharge. The study found a higher readmission rate

among children with medical complexities compared to those without medical complexities (68% vs. 31%); (O'Brien et al., 2022). Borges and colleagues (2020) found that the primary reason for readmission to the hospital was respiratory tract infections (48.3%) after a cross-sectional retrospective study assessed 10 years of medical assistance to pediatric home health patients on continuous invasive ventilation between 2007 and 2016. Data were collected on unplanned hospital readmissions and the cause of readmissions. Tracheitis represented 66.5% of those respiratory tract infections and readmission was linked to the quality of care given. The high incidence of tracheitis highlights the need for home health nurse training and continued follow-up for the improvement of home health care (Borges et al., 2020).

Gay and colleagues (2016) studied home health nursing of medically complex children. The retrospective cohort study included a comparison of 2,783 hospitalized children receiving post-discharge home health services to children who were not discharged to home health services. The groups were monitored for readmission over a 12-month period. Although there were a higher number of risk factors for illness in children with chronic conditions (68.5% for home health vs 65.4% for no home health), technology assistance (40.5% for home health vs 35.7% for no home health), and neurologic impairment (40.7% for home health vs 37.3% for no home health), 30-day readmission rates were lower in children receiving home health care. Home health patients averaged fewer admissions (0.8 for home health vs 1.0 for no home health, $p <$ .001), fewer days in the hospital (6.4 for home health vs 6.6 for no home health, $p <$ .001), and lower hospital costs ($22,511 for home health vs $24,194 for no home health,

$p < .001$) compared with children who did not receive home health at discharge (Gay et al., 2016).

Sick Day Plans

SDPs are evidence-based tools created by healthcare professionals in collaboration with patients and caregivers as guidance for managing acutely worsening respiratory conditions. Lakupoch and colleagues (2018) stated that action plans should offer colorful pictures and be divided into three levels of acuity. The plans should provide simple instructions in an easy-to-understand format.

Coller and colleagues (2018) created an action plan for pediatric patients with chronic conditions at home. The program gave caregivers education on recognizing critical symptoms and conducting sick day crisis plans. The outcome was to reduce 30-day hospital readmission rates. The action plans were created by the physician and nurse practitioner via a systematic protocol adapted from asthma action planning. The focus was on the patient's history and what would likely lead to hospitalization for the patient. The next step was identifying objective and subjective data of baseline (green), worsening (yellow), and severe (red) statuses. The third step included specific actions that the caregiver should take to prevent or manage each status that was observed. According to the study, hospitalization rates were 81 per 100 children with the action plan and 100 per 100 children without an action plan. In adjusted analyses, the action plan intervention demonstrated significantly lower hospitalization rate ratios compared to usual care (adjusted incident rate ratio = 0.61; 95% confidence interval [CI] [0.38–0.97]). Rates of all-cause 30-day readmissions were reduced for the intervention group (adjusted incident rate ratio = 0.37; 95% CI [0.14–0.98]). Coller et al. (2018) reported that children

with the action plan had a decreased risk of experiencing a readmission after the initial admission (adjusted hazard ratio = 0.41; 95% CI [0.17–1.00]).

Lakupoch et al. (2018) studied a written action plan for children with a respiratory diagnosis of asthma. Data were measured 6 months after the intervention. The analyzed outcomes of 49 children showed a reduction of ER visits, admission days, and school absence days. Fifolt et al. (2020) studied the use of action plans for children in home health and primary care settings. The study found that using an action plan gave caregivers role clarity and helped them manage the client's diagnosis (Fifolt et al., 2020). One systematic review by Waldecker et al. (2018) assessed action plans for children with chronic conditions that required a high level of self-management. The action plans help caregivers and clients with decision making and support self-management at home and at school. The study found that action plans alleviated caregiver worry and boosted confidence to manage the child's illness.

Pediatric action plans have also been studied in children with a history of seizures. Albert et al. (2019) studied seizure action plans to help patients and caregivers manage epilepsy. A cohort was randomly assigned to receive an action plan or standard epilepsy care alone. The study found that there was a significantly higher proportion of overall clinic appointments with no shows in the standard care group versus the seizure action plan group. *Seizure comfort* scores on the Modified Impact on Families questionnaire were significantly higher at 12 months among the seizure action plan group when compared to the standard care group (Albert et al., 2019).

Another study by Neville and colleagues (2020) assessed the results from implementing a seizure action plan for pediatric patients. The study found that provider

utilization rates improved from 0% to 58.1%. There was also an improvement in caregiver knowledge of their child's seizure disorder and emergency action plans at subsequent visits compared to the group who did not have an action plan.

Nursing Assessment. Due to limited evidence concerning SDPs, evidence to support specific nursing interventions was reviewed. Nursing assessment is a vital component of the proposed SDPs. Gilleland et al. (2019) developed an illness recognition tool to empower caregivers to recognize signs and symptoms of acute illness to help reduce time to treatment for children to connect home and hospital. The tool's indicators for further interventions included the child's behavior, respirations, skin appearance, hydration/feeding, and response to prior interventions. The tool helped nurses recognize illness and initiate appropriate treatment for pediatric clients (Gilleland et al., 2019).

Foster et al. (2020) studied the impact home health nursing assessment and high-quality care and interventions had on hospitalizations for pediatric home health clients. The semi-structured, in-depth key informant interviews of 20 caregivers and 20 providers were conducted and analyzed for home health quality factors using the Institute of Medicine's quality framework. The study found that symptoms of acute illness were reduced when the home health nurses provided early assessment and intervention through the execution of the client's plan of care. Home health providers should support care coordination with primary care physicians and specialists. Nurses felt more confident caring for clients at home with proper training to treat acute illness symptoms. The number of ER visits and hospital stays decreased with higher quality of home healthcare. Inconsistent nursing care is believed to increase hospital readmission rates (Foster et al., 2020).

Pletta et al. (2020) studied the impact of a pediatric action plan for pediatric home health patients who suffered from asthma. The action plans utilize nursing assessment and guide interventions like the SDPs. The national cross-sectional online survey was completed in 2018 by 704 parents of children aged 0-17 years with asthma. The survey included the Bursch Parental Self efficacy for Asthma scale, and caregiver perceptions of the asthma action plan's helpfulness regarding daily living factors ranked in a 5-point Likert scale. The results showed increased parental self-efficacy in caring for children with asthma. Parents also thought that action plans decreased missed time from work and school (Pletta et al., 2020).

Suctioning. Bacterial infections of the lower respiratory tract commonly occur when the upper respiratory tract is colonized with pathogens and is followed by aspiration of oropharyngeal secretions (Tapianen et al., 2016). The American Thoracic Society (ATS) (1999) has published guidelines for mechanical ventilation and tracheostomy management to reduce respiratory infections in children receiving home healthcare (Sherman et al., 2000). Routine high-pressure, deep suctioning for long periods may have a negative impact on pediatric patients, leading to the development of hypoxemia, bronchospasm, infection, and decreased lung compliance. Suctioning is traditionally done every 2 hours and should only be done when there are secretions present. Audible secretions, diminished breath sounds, and decreased oxygenation are signs that the nurse should be suctioning. Saline should not be instilled to loosen secretions as this reduces oxygenation and increases risk of infection (Lawrence et al., 2021). Suctioning should be completed for ventilator-dependent patients, before position changes, and prior to deflating the cuff on a tracheostomy tube (McGoldrick, 2010).

Nebulizer Therapies. Antibiotics, mucus hydration agents, glucocorticoids, bronchodilators, and mucolytic agents can be delivered through aerosols in a nebulizer and are an important part of treatment for home health clients (Moore, 2022). The gold standard respiratory medication treatment for children aged 5 years and younger is inhaled therapy. This therapy delivers a high concentration of medication in the airways and results in a rapid onset of action. Compared with an oral delivery method, inhaled nebulized therapy also causes fewer systemic side effects. Inhaled corticosteroids are routinely used to treat acute and chronic airway inflammation (Shen et al., 2021).

CPT. Several studies support the use of CPT for children with respiratory conditions. Children with severe physical and mental disabilities have difficulties with secretion clearance that can lead to persistent respiratory tract infections and recurrent hospital admissions (Wolff et al., 2015). The use of CPT helps to reduce lung function decline, need for oral antibiotics, and hospitalization rates (Powner et al., 2019). One study assessed a CPT program offered to 34 children aged 1 to 19 years who suffered from cerebral palsy and were getting CPT at home. Hospital admissions for respiratory tract infections fell from 43 hospitalizations in the 12 months prior to the intervention to 25 hospitalizations in the 12 months after the start of the intervention ($p < .05$). Respiratory admission length of stay decreased from 386 to 236 days in 28 months ($p < .01$). The study found that using CPT in the home can reduce unplanned hospital admissions and length of stay for children with disabilities (Wolff et al., 2015).

Home Oxygen Therapy. Many children receiving home healthcare require oxygen therapy. Home oxygen therapy supports and maintains the client's physiologic and metabolic requirements for children with respiratory diseases and may need to be

increased when the client gets sick. The indication for home oxygen therapy according to the Centers for Medicare and Medicaid Services (2022) includes partial pressure of oxygen less than 55 mm Hg, or oxygen saturation via pulse oximetry less than 88%. The use of home oxygen therapy may reduce mortality (Hayes et al., 2019).

Home oxygen therapy is utilized by clients with respiratory conditions including bronchopulmonary dysplasia, cystic fibrosis, interstitial lung disease, and pulmonary hypertension. A meta-analysis was conducted for patients with cystic fibrosis. The findings revealed that home oxygen therapy for mild hypoxemia was beneficial in managing exacerbations requiring antibiotics and helped improve school attendance at 6 months (71% vs. 21%; relative risk = 3.3; 95% CI [1.16, 9.59]) and 12 months (91% vs 20%; relative risk= 4.55; 95% CI [1.30, 15.9]; Hayes et al., 2019).

The British Thoracic Society (2015) recommends the use of home oxygen therapy to improve school attendance and improve symptomatic relief. According to the study, the use of home oxygen therapy greatly reduced the chance of harm by preventing nosocomial and iatrogenic complications of hospitalization. Treatment for hypoxemia was considered reasonable for clients with pulmonary hypertension who have oxygen saturation less than 92%. Baseline values revealed a trend toward higher oxygen saturation in the home oxygen therapy group (+5%; −4.43% to +14.43%). Mortality was lower among children who received home oxygen therapy (0% vs. 83%); (Hayes et al., 2019). Prescribing as needed home oxygen therapy for clients with interstitial lung disease is also recommended (Kriychenia et al., 2019). Age-appropriate supplies should be available for home health clients using flow meters to deliver flow of 0.1-1 liters per

minute for infants and young children as recommended by their primary care provider (Kriychenia et al., 2019).

Nursing Perception of Acceptability, Appropriateness, and Feasibility

Sidani et al. (2016) conducted a study examining nursing perceptions of evidence-based interventions targeting patient-oriented outcomes. The study highlighted that interventions were deemed feasible if they were not time consuming and if nurses felt confident in their ability to carry out the intervention. Moreover, interventions were considered appropriate when they had the potential to benefit the patient population and the necessary resources were available for successful implementation (Sidani et al. 2016).

Gaps in the Literature

There is a lack of published literature focusing on the effectiveness of interventions to reduce unplanned hospitalizations in pediatric home health clients. While there was published literature regarding asthma and seizure action plans, there was limited literature related to SDPs for children who have a chronic respiratory condition or require technological dependence at home.

Recommendations for Practice

Children with medical complications and complexities have the highest rate of hospital readmissions. Home health providers should facilitate care coordination with primary care physicians and specialists. Care is safer at home when home healthcare professionals have received proper training to treat acute illness symptoms (Foster et al., 2020). SDPs increase caregiver confidence and self-efficacy when caring for pediatric home health clients (Lakupoch, 2018; Pletta et al., 2020). SDPs also increase professional caregivers' opinion of care quality for home health clients (Foster, 2020). The ATS has

published guidelines for mechanical ventilation and tracheostomy management to reduce severity of respiratory infections in children receiving home healthcare (ATS, 1999; Sherman et al., 2000). Components of the SDP including nebulized medication therapy, CPT, and home oxygen therapy can improve mucus clearance and reduce respiratory distress (Powner et al., 2019), and improve patient symptoms while reducing the need for hospitalizations (Hayes et al., 2019). Based on the evidence of pediatric action plans and caregiver education by Coller et al. (2018), SDPs should be completed in collaboration with family caregivers, physicians, nurses, and clinical nurse managers to ensure implementation of the most effective plan individualized to each client's unique needs during times of distress.

Conclusion

Children living with chronic conditions requiring home healthcare are often at risk for respiratory tract infections leading to unplanned ER visits and hospitalizations (Borges et al., 2020; Gay et al., 2016; O'Brien & Dumas, 2020). Unplanned hospitalizations create significant stress among the family and can lead to financial hardships (Borges et al., 2020). A SDP created for use when the client is showing signs of illness can help relieve symptoms and mitigate unplanned hospitalizations. The use of a SDP composed of nursing assessment and respiratory interventions including increased suctioning, medication administration, CPT, and home oxygen therapy can improve nursing perception of acceptability, appropriateness, and feasibility, and reduce unplanned hospitalizations for pediatric home health clients (Coller et al., 2018).

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Appendix A

Evidence Table

Authors & Date	Study, Design/ Method	Particpants, Sample, Setting	Intervention /Variables Studied	Measurement	Data Analyzed	Findings/Recommendations for Practice	Strengths and Weaknesses	Level of Evidence
Albert, D., Moreland, J. J., Salvator, A., Moore-Clingenpeel, M., Haridas, B., Cole, J. W., Glynn, P., Fults, M., Dawson, M. Z., Moreland, P., & Patel, A. D. (2019).	Prospective cohort study	102 pediatric epilepsy patients. Fifty-four patients received a seizure action plan and standard care, whereas 48 received standard care alone.	Seizure action plan for use in pediatric epilepsy patients vs. standard care.	Health care utilization measures and Modified Impact on Families questionnaire scores	Healthcare utilization, family satisfaction.	There was a significantly higher proportion of overall clinic appointment no shows in the standard care group vs the seizure action plan group (P = .04). *Seizure comfort* scores on the Modified Impact on Families questionnaire were significantly higher at 12 months among the seizure action plan group compared to the standard care group.	differences in health care utilization were not present.	Level II, Grade B

Bermingham, B., Kirkpatrick, D., Nichols, J. Nesmith, A., & Powner, J. (2019).	Observational comparative retrospective cohort study.	65 patients with bronchiectasis	Nebulized bronchodilators, chest physiotherapy, and mucolytics effect on hospitalizations and antibiotics use.	Descriptive comparison statistics.	FEV1, exacerbations requiring hospitalizations, and antibiotic use.	The mean FEV_1 remained stable at 1-year post enrollment (1.85 ± 0.60 L pre vs 1.89 ± 0.60 L post, p = NS) and the number of exacerbations requiring hospitalization was reduced (1.3 ± 1.0 pre vs. 0.46 ± 0.81 hospitalizations, post initiation, $p < 0.0001$). Antibiotic use overall was also reduced (2.5 ± 0.86 courses/year pre vs 2.1 ± 0.92 courses per year post initiation, $p < 0.0001$).	Weaknesses: biases that can be introduced during observation or analysis.	Level III; Quality Grade B
Coller, R., Flores-Vazques, B., Klitzner, T., Lerner, C., Nelson, Bl, Siem, A., Thompson, L., & Zhao, Q. (2018).	Randomized controlled trial	147 pediatric patients	Use of plans for action and care transitions on hospital use for children with medical complexity.	Bivariate and multivariate analysis	Hospitalization rates, charges per patient, mortality	Hospitalization rates (per 100 child-years) were 81 for PACT vs 101 for usual care (adjusted incident rate ratio: 0.61 [95% confidence interval 0.38–0.97]). Adjusted mean charges per patient were $14206 lower in PACT. There were 0 deaths in PACT vs 4 in usual care (log-rank P = .04).	Generalizability due to the program caring for predominantley publicly insured, urban, lower income families.	Level 1 Grade A

Borges, E. F., Borges-Junior, L.H., Lana Carvalho, A. Ferreira, H.S., Tadashi Hattori, W., & Gonc¸alves de Oliveira Azeved, V.M. (2020).	Retrospe ctive binary logistic regressio n model.	27 children	Medical records for children on invasive HMV at the HCS between 2007 and 2016 were evaluated to collect the following data: age at admission to HCS, sex, principal diagnosis, length of hospital admission and home care period, number and cause of hospital readmission s, number of procedures, death and location of death.	The odds ratio was used to understand the	likelihoo d of death for each diagnosis , hospital readmissi on, and admissio n age, using a binary logistic regressio n model.	The mean duration of home care was higher than the mean hospital length of stay (955.0 6 4.6 d versus 341.0 6 0.5 d, respectively). First hospital readmission mean was at 392.6 6 548.9 d, and the main cause was respiratory tract infection (45.9%), especially tracheitis. Of the total number of deaths (13), 76.9% occurred in hospital units. There was no statistically significant result observed for greater odds of death for any of the diagnoses and admission age on HCS. However, children who had a hospital readmission < 6 months after hospital discharge presented 10% greater chance of death (P 5 .02)	Some data in medical records was missing or incomplet e. Small sample size.	Level III; Quality Grade B

Gilleland, J., Bayfield, D., Bayliss, A., Dryden-Palmer, K., Fawcett-Arsenault, J., Gordon, M., Hartfield, D., Iacolucci, A., Jones, M., Ladouceur, L., McNamara, M., Middaugh, K., Moore, G., Murray, S., Noble, J., Singh, S., Stuart-Minaret, J., Williams, C., & Parshuram, C. S. (2019).	Nominal group technique	17-member panel of parents and care providers	Time to treatment of acute conditions that require emergent medical attention.	Single Day consensus workshop	Symptoms signaling acute illness.	One hundred percent consensus was achieved on a five-item tool distilled from 20 initial items at the beginning of the consensus workshop. The final items included four child-based items consisting of: (1) behaviour, (2) breathing, (3) skin, and (4) fluids, and one context-based item and (5) response to rescue treatments.	limited number of healthcare professionals.	Level V; Quality Level B
Gay, J. C., Thurm, C. W., Hall, M., Fassino, M. J., Fowler, L., Palusci, J. V., & Berry, J. G. (2016).	Retrospective matched cohort study	2783 hospitalized children	Use of home health services for medically complex pediatr	Nonparametric Wilcoxon signed rank tests were used for comparisons between HH and non-HH users.	Children receiving home health services were compared to children not receiving	30-day readmission rates were lower in HH patients (18.3% vs 21.5%, P = .001). At 12 months after the index admission, HH patients averaged fewer admissions (0.8 vs 1.0, P < .001), fewer days in the hospital (6.4 vs 6.6, P < .001), and lower hospital costs ($22 511 vs	Strength is sample size	Level III; Quality Grade A

			ic clients vs. no home health services		HH services from 2004-2012. Subsequent hospitalizations, hospital days, readmissions, and costs of hospital care were assessed over the 12-month period after the initial hospitalization.	$24 194, P < .001) compared with matched controls.		
Fifolt, M., Johnson, H. H., & Benton, E. C. (2020).	Quantitative and qualitative data collection	14 pediatric primary care practices and 6 home	Improvements in self-management strategies, use of	Quantitative data collection	Adherence to asthma action plan, improvements in administr	Providers and Health Home care coordinators identified role clarity, mitigation of environmental triggers, and management of	Assessed both primary and home health.	Level V Quality Grade B

		health practices	medications.		ation of orders.	asthma conditions as benefits of the experience.		
Foster, C. C., Fuentes, M. M., Wadlington, L. A., Jacob-Files, E., Desai, A. D., Simon, T. D., & Mangione-Smith, R. (2020).	Semi-structured, in-depth key informant interviews of 20 caregivers and 20 providers	40 providers	Interviews of providers with IRB approval.	Transcribed, anonymized, coded, and thematic analysis with rigorous inductive approach.	patient/family, insurance, and workforce factors affect the quality of the home healthcare received	This study provides evidence for the value of high-quality home healthcare to improve CMC health and family daily life and potentially prevent emergency department and hospital use.	private duty nursing shortage, which may have overshadowed nuanced factors related to access. volunteer bias.	Level IV Quality Grade B
Hayes, D., Jr, Wilson, K. C., Krivchenia, K., Hawkins, S., Balfour-Lynn, I. M., Gozal, D., Panitch, H. B., Splaingard, M. L., Rhein, L. M., Kurland, G., Abman, S. H., Hoffman, T. M., Carroll,	Systematic reviews	952 articles were identified and filtered using common disease processes that cause hypoxemia.	Oxygen saturations, School sick days, sleep and wakefulness.	Applied the Grading of Recommendations, Assessment, Development, and Evaluation approach to rate the quality of evidence and strength of clinical recommendations.	estimated effects, the balance of desirable (benefits) and undesirable (harms and burdens) consequ	for patients with cystic fibrosis, the benefits of home oxygen therapy for mild hypoxemia is beneficial for exacerbations requiring antibiotic and helped improved school attendance at 6 months (71% vs. 21%; relative risk, 3.3; 95% CI, 1.16 to 9.59) and 12 months (91% vs. 20%; relative risk, 4.55; 95% CI, 1.30 to 15.9).	Some limitations to accurate SpO2 determinations with pulse oximeters include improper probe placement, movemen	Level 1; Quality Grade A

C. L., Cataletto, M. E., Tumin, D., Oren, E., Martin, R. J., Baker, J., Porta, G. R., Kaley, D., … & Deterding, R. R. (2019).					ences of treatment, patient values and preferences, cost, and feasibility		t artifact, nail color, ambient light, reduced distal extremity perfusion, hypothermia, skin pigmentation, and dysfunctional hemoglobin	
Lakupoch, K., Manuyakorn, W., Preutthipan, A., & Kamalaporn, H. (2018)	prospective cohort.	Fifty-two children with asthma were enrolled.	ER visits, factors contributing to ER visit, hospitalizations, school absences.	Categorical variables were reported as counts and compared using McNemar and Fisher exact test, as appropriate. Continuous	ER visits number, factors contributing to ER visit, hospitalizations, school absences.	The total number of ER visit before receiving WAAP was 18 visits. After receiving WAAP, it was reduced to 3 visits. This shows a significant decrease in number of ER visits (p-value= 0.005). There was a significant decrease in the number of unscheduled OPD visit (p-value=0.046), the number of days of admission (p-	controlled group. Also, some factor, such as seasonal variation of enrollment period may contribut	Level IV, Quality Grade A

				variables were analyzed by using Wilcoxon sign rank test.		value=0.026) and also a significant decrease in the number of days of school absence (p-value=0.022).	e some bias.	
Neville, K. L., McCaffery, H., Baxter, Z., Shellhaas, R. A., & Fedak Romanowski, E. M. (2020).	Questionnaire for Physicians	caregivers of children (zero to 18 years) seen for seizures in outpatient neurology clinics.	improved parental knowledge of their child's epilepsy diagnosis, treatment plan, and comfort in emergency seizure management based on responses to serial questionnaires completed by the parent or caregiver	chi-square tests	Patient encounters, use of plan, family satisfaction	Provider utilization rates of the standardized seizure action plan improved from 0% to 58.1%. At baseline, 31.5% caregivers indicated that they did not know their child's epilepsy syndrome or seizure type, 29.6% did not know the emergency protocol at their child's school, 9.2% did not know when to consider a seizure an emergency or what to do if their child's seizure had become an emergency, and 17.5% were not comfortable administering rescue medication. Caregivers who received the action plan had improved responses at subsequent visits ($P < 0.001$), whereas	Survey was given voluntarily to patients which could cause selection bias.	Level V Grade B

			at each clinic visit			those who did not receive the standardized form did not improve.		
O'Brien. J., & Dumas, H. (2022).	A retrospective cohort analysis	448 children with medical complexity	frequency of acute care hospital admissions after discharge home from a post-acute care hospital (PACH).	Standard descriptive statistics	Acute care hospital readmission for any reason (ie, all causes) was measured up to 90 days after PACH discharge.	Ninety-nine children (22%) had a readmission to the acute care hospital. Of these readmissions, 61 (62%) occurred between 0 and 30 days and 38 (38%) between 31 and 90 days after PACH discharge. A higher percentage of children readmitted had high medical severity (>3 systems involved or ventilator dependent) compared with children not readmitted (68% vs 31%, *P* = .04).	Limited data are available about acute-care readmissions in children who use a PACH for health recovery.	Level IV; Quality Grade A
Pletta KH, Kerr BR, Eickhoff JC, Allen GS, Jain SR, & Moreno MA. (2020).	National cross-sectional online survey	704 parents with a child with asthma	self-efficacy for asthma and parental-perception-of-helpfulness scores between subjects	. A 2-sample *t* test and analysis of covariance	including managing asthma decreased parental missed workdays	parents reported that they agreed/strongly agreed that an AAP was helpful for daily living factors, including managing asthma (446/544, 82%), decreased parental missed workdays (367/544, 68%), decreased child missed-school days (396/542, 73%), and for when a	Strengths include large sample size	Level V, Quality Grade A

			with an AAP versus subjects without an AAP.		.	child is at school (422/541 78%), with other caregivers (434/543, 80%), doing normal activities (421/540 78%), and leading a normal life (437/540 81%).		
Shen, K., Hong, J., El Beleidy, A., Furman, E., Liu, H., Yin, Y., Cano-Salas, M., AlJassim, F. M., Al-Shammari, N., Lochindarat, S., & Dieu Thuy, N. T. (2021).	Literature Review	26 publications	the use of nebulization in pediatric asthma treatment during the pandemic.	Consensus statements were completed by 11 international experts and documented. Ranking was let by an independent moderator.	pediatric management of asthma using nebulizers during the COVID-19	Nebulization should be continued during the pandemic: Consensus reached: 100% agreement. Need for guidance on risk mitigation in hospital and home settings: Consensus reached: 100% agreement;	Limitations included that some discussion was virtual due to pandemic.	Level V, Quality Grade B
Siclovan, D. M., Bang, J. T., Yakusheva, O., Hamilton, M., Bobay, K. L., Costa, L. L., Hughes, R. G., Miles,	Secondary analysis of a multi-site dataset from a study of	(n = 18,555) included hospitalized patients discharged from medical	Emergency department visits and readmission rates=	Unadjusted t-tests and adjusted multinomial logit regression analyses	occurrence of readmissions and Emergency Department/Obs	Home health care referral was not associated with lower rates of return to hospital within 30 and 60 days in this US sample matched on patient and clinical condition characteristics. This result raises the question of why	Strength: study is the first to use a large geographically diverse multi-site	Level V, Quality Grade B

J., Bahr, S. J., & Weiss, M. E. (2021).	discharge readiness assessment and post-discharge return to hospital	surgical units who were referred (n = 3,579) and not referred (n = 1			ervation visits within 30 and 60-days post discharge	home health care services did not produce evidence of lower post-discharge return to hospital rates. Focused attention by home health care programs on strategies to reduce readmissions is needed.	database of general medical-surgical patients Weakness: 60-day readmissions, the longer follow-up period may have further confounded the results	
Sidani, S., Manojlovich, M., Doran, D., Fox, M., Covell, C. L., Kelly, H., Jeffs, L., & McAllister, M. (2016).	A mixed method design involving concurrent application of quantitative and qualitati	Nurses (*n* = 56) working in acute and rehabilitation care settings completed the Interven	nurses' perception of evidence-based interventions targeting patient-	Descriptive statistics	Nursing perception of relevance and applicability of the interventions to the contexts	The quantitative results indicated favorable perceptions of most interventions. Nurses rated acupressure, guided imagery, massage, and relaxation as having limited appropriateness and they reported low levels of comfort in applying them. Interventions are	The sample size was small and underrepresented RPNs and APNs.	Level III, Grade B

	ve approaches was used	tion Acceptability scale and responded to open-ended questions.	oriented outcomes.		of practice	applicable if they can easily be carried out without a large amount of resources or time.		
Waldecker, A., Malpass, A., King, A., & Ridd, M. J. (2018).	Systematic review	3473 titles screened, 53 read in full.	Written action plans for pediatric home health effect on decision making and support of caregiver.	Registered with PrOSPERO and observed using ENTREQ guidelines.	Caregiver perception of managing medically complex children.	WAPs may help to alleviate user worry and boost confidence. Confidence to act was closely linked to feelings of responsibility and authority	findings were limited by the conditions and settings in which they were conducted:	Level V Quality Grade B
Wolff, A., Griffin, H., Flanigan, M., Everest, S., Thomas, D., &	Retrospective "before and after" observat	Thirty-four children aged 1 to 19 years	Information letters for parents/carers and general	Each child would acted as their own control and Wilcoxon signed	Admissions for respiratory tract infection,	Admissions for respiratory tract infection fell from 43 to 25 ($p<0.05$), respiratory admission bed-days fell from 383 to 236 ($p<0.01$), total non-elective	unable to identify which interventions from the new	Level III; Quality Grade A

Whitehouse, W. (2015).	ional method		practitioners, Respiratory physiotherapy care pathway and flow diagram, Individual respiratory assessment form, Competency form for parents and professionals in each child's community care team, A service satisfaction tool to be given to parents and carers after receiving	ranked matched pairs statistical test used to compare performance indicators before and after introduction of the service for each individual child.	respiratory admission bed-days, non-elective admissions, admission cost savings	admissions fell from 64 to 40 ($p<0.01$), with admission cost savings of GBP 78,155 (52%) per annum.	service are most effective.	

			the service for 12 months.					

Appendix B

JPNEBP Model

Hierarchy of Evidence Guide
Appendix D

Note: Refer to the appropriate Evidence Appraisal Tool (Research [Appendix E] or Nonresearch [Appendix F]) to determine quality ratings.

	Evidence Level	Types of Evidence
Research Evidence (Appendix E)	Level I	• Experimental study, randomized controlled trial (RCT) • Explanatory mixed methods design that includes only a Level I quaNtitative study • Systematic review of RCTs, with or without meta-analysis
	Level II	• Quasi-experimental study • Explanatory mixed methods design that includes only a Level II quaNtitative study • Systematic review of a combination of RCTs and quasi-experimental studies, or quasi-experimental studies only, with or without meta-analysis
	Level III	• Nonexperimental study • Systematic review of a combination of RCTs, quasi-experimental and nonexperimental studies, or nonexperimental studies only, with or without meta-analysis. • Exploratory, convergent, or multiphasic mixed methods studies • Explanatory mixed methods design that includes only a Level III quaNtitative study • QuaLitative study • Systematic review of quaLitative studies with or without meta-synthesis
Nonresearch Evidence (Appendix F)	Level IV	Opinion of respected authorities and/or nationally recognized expert committees or consensus panels based on scientific evidence. Includes: • Clinical practice guidelines • Consensus panels/position statements
	Level V	Based on experiential and non-research evidence. Includes: • Scoping reviews • Integrative reviews • Literature reviews • Quality improvement, program or financial evaluation • Case reports • Opinion of nationally recognized expert(s) based on experiential evidence

Appendix C

Levels of Evidence

Level of Evidence		Grade	
I	2	A	7
II	1	B	11
III	5	C	0
IV	3		
V	7		

Appendix D

Permission for Use

JOHNS HOPKINS EBP MODEL AND TOOLS- PERMISSION

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Sick Day Plans for Pediatric Home Health to Reduce Unplanned Hospitalizations: Methodology

BY

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A paper submitted in partial fulfillment of the requirements for the degree

Doctor of Nursing Practice

South Dakota State University

2023

Abstract

Background/Purpose: Pediatric home health patients with chronic respiratory conditions often have a higher risk of developing respiratory tract infections leading to emergency room (ER) visits and unplanned hospitalizations. A sick day plan (SDP) can help nurses recognize signs of illness early and prompt them to intervene with supportive respiratory care, thus preventing worsening illness and hospitalization.

Methods: A SDP respiratory assessment and intervention tool was implemented in a pediatric home health organization. The number of pre and post intervention ER visits and unplanned hospitalizations were compared.

Results: The total mean ER rates over 1 year before project implementation was found to be 0.69 (SD = 0.046). The total mean ER rates after project implementation was found to be 0.33 (SD = 0.043). The total mean hospitalizations per week before the implementation of the SDP was found to be 0.46 (SD = 0.033). The mean hospitalizations per week after the implementation was found to be 0.33 (SD = 0.036). Nurses reported that the SDP was an acceptable, appropriate, and feasible intervention.

Discussion: Barriers to the project implementation included variability in nursing hours to complete training and a lack of a validated survey to assess family satisfaction with SDP implementation.

Implications for Practice: This project impacted the organization by reducing the burden of illness for immunocompromised populations and helped pediatric patients by reducing ER visits and hospitalizations.

Sick Day Plans for Pediatric Home Health to Reduce Unplanned Hospitalizations

Background/Purpose

Many children in the United States require the use of home healthcare services. Among these children, those who need home oxygen therapy, ventilators, continuous positive airway pressure (CPAP), bilevel positive airway pressure (BIPAP), or ventilator support due to respiratory conditions are at a higher risk of developing respiratory tract infection (Borges et al., 2020). Such infections can lead to emergency room (ER) visits and unplanned hospitalizations, causing emotional and financial difficulties for families. Additionally, children who receive home healthcare in rural areas have limited access to healthcare facilities. Recurrent respiratory infections hold risks such as long-term antibiotic use and vulnerability to sepsis. The cost of a hospital admission has the potential to burden families and the healthcare system. One hospital admission to treat infection can cost nearly $70,000 (Soto et al., 2016).

Pediatric home health clients receiving care through a Midwestern home health agency currently have a plan of care that is located in a binder in the child's home. When the child falls ill, the nurse must navigate through this cumbersome binder to find standing orders and determine the most appropriate interventions (B. Zwak, personal communication, May 6, 2022). Hence, there is a need for a universal tool that is easily accessible and can be used to guide nurses in decision-making based on the client's symptoms (Lakupoch et al., 2018). A sick day plan (SDP) was created as an action plan tool that can be used for all pediatric home health clients. The SDP format was adapted from action plans; therefore, the term action plan and SDP are used interchangeably. The SDP is divided into zones of severity that guides nurses on which nursing interventions

are most appropriate for the child based on the child's symptoms. The SDP is a tool to help nurses recognize critical symptoms early and enables nurses to execute interventions to prevent unplanned ER visits and hospitalizations.

PICOT question. The PICOT question that guided this Doctor of Nursing Practice (DNP) project was as follows: In pediatric home health patients with a respiratory diagnosis and their nurses (P), how does the creation and implementation of a sick day plan (I) compared to the current practice of no sick day plan (C) affect emergency room visit rates, unplanned hospital admission rates, and nursing perception of acceptability, appropriateness, and feasibility of the tool (O) over 3 months (T).

Evidence Findings. Children living with chronic conditions requiring home healthcare are frequently susceptible to respiratory tract infections leading to unplanned ER visits and hospitalizations (Borges et al., 2020; Gay et al., 2016; O'Brien & Dumas, 2020). Home health nurses play a fundamental role in recognizing acute illness in children (Foster et al., 2020; Gilleland et al., 2019). A pediatric home health SDP utilizing interventions such as suctioning, nebulizer therapy, chest physiotherapy (CPT), as needed medications, and home oxygen therapy has demonstrated a reduction in hospitalizations and absenteeism from work and school (Birmingham et al., 2019, Coller et al., 2018; Lawrence et al., 2021; Pletta et al., 2020; Shen et al., 2021).

Recommendations for Practice. The SDP serves as an action plan tool that provides essential information and guidance to assist home health nurses in managing care for unwell clients (Coller et al., 2018). A SDP can help home health nurses make respiratory intervention decisions to reduce symptoms of acute illness for home health clients. Implementing measures such as increased assessment, suctioning, nebulized

medication therapy, CPT, and home oxygen therapy can improve symptoms and reduce the need for ER visits and hospitalizations (Birmingham et al., 2019; Kriychenia et al., 2019; Lawrence et al., 2021; Shen et al., 2021). SDPs should be developed with the collaboration of the client's healthcare provider, nurse managers, and nurses to ensure that each plan is individualized to the child's needs (Nageswaran, & Golden, 2016).

Gaps. Gaps included limited recent literature focusing on the prevention of unplanned hospitalizations specifically for the pediatric home health population. There was also a lack of recently published studies focusing on pediatric home health clients in rural and urban settings. While there was evidence that children with asthma and seizures benefit from action plans, there was limited published evidence on the effectiveness of action plans for children with chronic respiratory diseases who are receiving home healthcare.

Methods

Framework, Theories, and Models. Havelock's change theory was chosen for this project. The Havelock model includes building a relationship, diagnosing a problem, acquiring resources for change, selecting a pathway for a solution, establishing and accepting change, and maintenance and separation (Lane, 1992). Building a relationship occurred when the DNP Project Manager met with the director of nursing operations and nurse managers to discuss the goals and needs of the agency. Reducing respiratory infections, ER visits, and hospitalizations were identified as needs of this agency and patients served. For the 'acquire resources for change' step, data were gathered on current plan of care as well as hospitalization rates. Next is the step of 'selecting a pathway for the solution'. In this step, it was discovered that there was a need to help with the early

identification of acute respiratory illness and guidance for the implementation of as needed respiratory care. The step ‘establish and accept change occurred as home health nurses are introduced to the implementation. The final step or the ‘maintenance and separation’ step occurred after the implementation to make sure the change is successfully stabilized and maintained.

The evidence-based practice model used for this project was the Iowa Model and guidelines. The Iowa Model guides clinical decision making and evidence-based practice to promote quality improvement (Iowa Model Collective, 2017). The theoretical framework used to guide this project was the patient-centered approach to nursing framework. This framework includes a series of steps such as learning about the patient, sorting out relevant data, identifying a therapeutic plan, testing the plan, observing and evaluating, exploring reactions of patient and their families, and understanding how nurses feel about the plan (Ortiz, 2021).

Setting. The setting for this project was a home health nursing organization in the Midwest. The organization specializes in home healthcare for the pediatric population with serious medical conditions. The organization serves the upper Midwest with six offices; however, the quality improvement project took place in the same state as the DNP Project Manager at the agency’s request. The population of the state that the project was located is primarily Caucasian (84.27%), Native American (8.75%), and African American (2.01%; United States Census Bureau, 2021).

Sample. The sample included 55 pediatric home health nurses working for the home health agency as well as 20 pediatric clients aged 12 months to 18 years with a respiratory diagnosis including one or more of the following: bronchopulmonary

dysplasia, cystic fibrosis, asthma, congenital lung disorders, congenital central hypoventilation syndrome, and respiratory failure with ventilator dependence. Prior to the DNP Project, none of the clients had a SDP in place. The sample was chosen by the nurse managers to include children with a respiratory diagnosis requiring respiratory interventions, and children with frequent care from nurses. All 20 of the participants required technological dependence at home such as a tracheostomy with intermittent ventilator use. The clients required home care for approximately 10-20 daily hours during the day or night. Nurses stayed for a full 10-hour shift and provided nursing cares and assessments throughout the shift. Both registered nurses and licensed practical nurses were employed by the agency. Nurses were assigned to families and worked in primarily urban areas. They usually had one client per shift and could be with the child at home, school, or appointments (B. Zwak, personal communication, May 6, 2022).

Intervention Tools

Sick Day Plan Tool. A SDP was developed by the DNP Project Manager for this DNP Project and was used by the nursing staff when the child was showing signs of illness. The SDP tool was developed by integrating findings from a literature review and interviews with the director of nursing operations and nurse managers at the facility of project implementation. The format was adapted from asthma action planning. The SDP is a tool with an organized summary of the child's standing orders that guided nurses in choosing as needed interventions when the child was showing signs of illness (Coller et al., 2018). The interventions were ordered by the client's primary care provider.

First, areas of focus were identified on the basis of nurse manager opinion about what would most likely lead to a future ER visit or hospitalization (trouble breathing,

shortness of breath, wheezing, or a change from their baseline status). In the second step, objective and subjective signs of baseline (green), worsening (yellow), and severe (red) statuses were defined. In the third step, specific actions that nurses should take to prevent or manage worsening symptoms in each zone were delineated.

The nurse opened the SDP when the child stated they were feeling unwell or were showing signs of respiratory illness. The plan included the following: the client's name, date of birth, date the plan was updated, primary provider, primary provider day and night phone numbers, emergency contact, and on-call nurse manager contact information. The SDP was divided into zones of illness. The green zone signified that the client stated they were feeling unwell but were clinically showing mild symptoms. These symptoms included easy work of breathing, no fatigue or shortness of breath with activity, no wheezing, coughing, or shortness of breath. The client may have had some congestion in the green zone. The yellow zone meant that the child's symptoms were worsening. These symptoms included moderate congestion, cough, or nasal drainage, waking up at night with breathing problems, wheezing, coughing, shortness of breath, breathing changes, or significant changes in vital signs. The red zone signified that the symptoms were more severe and the child's symptoms included moderate congestion, cough, nasal drainage, waking up at night with breathing problems, wheezing, coughing, shortness of breath, breathing problems with activity, or significant changes in vital signs.

Interventions including suctioning, medications, nebulizers, home oxygen therapy, and CPT were listed under each zone and were filled out according to the child's standing orders. Each zone listed all interventions possible, but there were changes or titrations to the interventions with increasing zones of severity. The interventions were all

listed to ensure that the tool could be universally utilized for each client and could be tailored to the child's individual orders. The nurses were able to see as needed interventions for each zone of illness and could choose the ones that the client needed. The plan directed the nurse to call the nurse manager on call or the primary care provider, or to go directly to the ER if symptoms were severe. The SDP (Appendix C) was added to the client's plan of care and nurses were trained on how to use the tool.

Staff Training. The DNP Project Manager created an educational training document describing the SDP and when to use it. This document was emailed to all nurses for them to read and use as a reference (Appendix D). Training at the agency was deployed as emails and paper copies in the home because the nurses typically do not meet at the agency together more than once per year. The document was placed in the nursing binder that was in every client's home 2 weeks prior to the start of the project and the signature page was collected by the DNP Project Manager after 1 month. All home health nurses were sent an email asking for them to review the training document by the time the project was implemented. The nurses signed a form included with the educational document verifying that the education was completed. Any questions about the SDP training document were directed to the DNP Project Manager by phone or email. The DNP Project Manager's contact information was provided in the training document. Questions on the SDP after implementation were directed to the nurse manager for that client. The client's parents were also made aware of the changes in the plan of care through communication with the clinical nurse manager.

Nursing Questionnaire. The Acceptability of Intervention Measure (AIM), Intervention Appropriateness Measure (IAM), and Feasibility of Intervention Measure

(FIM) is a questionnaire developed by Weiner and colleagues in 2017 that measures the acceptability, appropriateness, and feasibility of a project intervention (Appendix E). Weiner and colleagues (2017) conducted studies to assess the psychometric properties of the measures. The studies included content validity, structural validity, reliability and known-groups validity, and test-retest reliability and sensitivity. Scale refinement based on measure-specific confirmatory factor analysis (CFA) and Cronbach alphas using vignette data produced 4-item scales (α's from 0.85 to 0.91). A three-factor CFA exhibited acceptable fit (CFI = 0.96, RMSEA = 0.08) and high factor loadings (0.75 to 0.89), indicated structural validity. Analysis of variance (ANOVA) showed significant main effects, indicating known-groups validity. Test-retest reliability coefficients ranged from 0.73 to 0.88 (Weiner et al., 2017).

The questionnaire is composed of three sections with four-items per section measuring implementation outcomes that are considered leading indicators for implementation success (Proctor et al., 2011). There are three variables for each subscale that will have means reported. The questionnaire can be administered to stakeholders to determine the extent to which they believe the SDP is acceptable, appropriate, and feasible. The questionnaire was able to be adapted to this project by replacing the "Intervention Strategy" for "SDP". Readability is at a 5th grade level. No special training is needed to administer, score, or interpret results. Higher scores indicate greater acceptability, appropriateness, and feasibility (Weiner et al., 2017).

Project Procedure. Following organizational approval, nurses were educated on the SDP 2 weeks before the project implementation. The nurse managers worked together with the DNP Project Manager to help determine pediatric clients that met the inclusion

criteria. The SDPs were individualized for each client with the collaboration of the nurse managers and the child's primary care provider. The SDP tool was filled out for each client according to the client's standing orders. Each nurse had access to the SDPs in the plan of care that was located in a binder in the client's home. The nurse provided cares as usual with assessments of the client every 4 hours. The SDP was initiated if the client was showing signs of illness or stated that they felt unwell. This prompted the nurse to look at the SDP and follow the orders that were given by the provider. Documentation of the interventions took place in using the agency's charting system. Nurse managers would make changes to the SDP if there were changes in orders from the primary care provider during the data collection period and would then send the document to the families. Nurses were instructed in the training document to write in their end of shift narrative summary note if they used the SDP during their shift. Nurses took a voluntary questionnaire measuring acceptability, appropriateness, and feasibility with the SDP tool 3 months after the implementation of the project via the university's QuestionPro questionnaire portal (Appendix F).

Data Collection. Demographic data were collected and de-identified by the director of nursing operations at the end of the 3-month data collection period (Appendix G). The number of children, age range, diagnosis, use of medical technology, ethnicity, and rural/urban residency were collected by the director of nursing operations. The DNP Project Director reported the demographic data as an aggregate through descriptive statistics.

Outcome data such as ER visits and unplanned hospitalizations were assessed by collecting incident report data and the number of ER visits, unplanned hospitalizations,

and cause of hospitalizations. Baseline outcome data were collected and de-identified by the director of nursing operations for 1 year prior to the project. The director of nursing operations collected and de-identified the post-intervention data for 3 months after the project was implemented. The pre and post intervention data were analyzed by utilizing a paired t-test to compare the means of visits per week per client in the 1 year prior to the start of the project and 3 months after the start of the project.

Questionnaire data were collected 3 months after the implementation initiation date to assess nursing perception of acceptability, appropriateness, and feasibility of the project. Questionnaires were anonymous to protect the identity of the nurses.

Ethical Considerations. This project was approved by the agency's privacy officer. The data were de-identified and provided by the director of nursing operations of the agency. The privacy officer was also contacted to ensure the Health Insurance Portability and Accountability Act (HIPAA) was maintained throughout this project with the client's personal information and identification being protected when disseminating results. The DNP Project Manager then submitted to the university institutional review board (IRB) for determination of level of approval needed. The agency itself does not have an IRB. The university IRB determined that the project did not involve human subjects and approval was not needed. Nurse questionnaires were anonymous and kept confidential with password protection on the nurse manager's work computer, only the DNP Project Manager and nurse manager had access to review this data.

Results

Demographics. Twenty-one clients aged 1 to 17 years old were initially included in this DNP Project. One client was discharged from the home health facility, resulting in a total

of 20 participants. The majority of the sample were Caucasian (n = 17, 85%), followed by Native American (n = 2, 10%), and African American (n = 1, 5%). Most participants resided in an urban area (n = 17, 85%) as opposed to a rural area (n = 3, 15%). All 20 clients had a tracheostomy, with one client requiring intermittent CPAP and four clients utilizing a ventilator in conjunction with their tracheostomy tube. The care of these clients involved a total of 55 nurses, who provided services on a full-time, part-time, or as needed basis.

Statistical Testing Results

The statistical analysis for this project was performed by the DNP Project Manager with the guidance of a university statistician. The ER and hospitalization rates were compared for 12 months before the implementation initiation date of the project and 3 months after the project initiation date. The data were reported as the number of visits per patient per time (in weeks).

ER Visits. The total mean ER visits for the entire sample per week over 1 year before the implementation was found to be 0.69 (SD= 0.046). The total mean ER rates after the initiation of the DNP Project was found to be 0.33 (SD=0.043). A paired t-test was conducted to compare the mean number of weekly (ER) visits per week per client from 1 year prior to the start of the intervention and for the 3-month period that data were collected after the start of the intervention. A paired t-test is a statistical test used to compare the means of two related samples (Xu et al., 2017). In this case, the samples are pre- and post-implementation ER rates of the same participants. The paired t-test was also appropriate for a small sample size in this case (Xu et al., 2017). The total ER visits were adjusted to ER visits/week. Based on a sample size of 20 children, the mean difference

was found to be 0.01736 (SD = 0.00137); p <.001 (Figure 1). The calculated t-statistic was 57.5 with 19 degrees of freedom. At a significance level of 0.05, the critical value was exceeded. Therefore, it could be concluded that the difference between the two groups was statistically significant.

Hospitalizations. The total mean hospitalizations per week for the entire sample before the implementation of the SDP was found to be 0.46 (SD=0.033). The mean hospitalizations per week for the sample after the implementation was found to be 0.33 (SD= 0.036). A paired-sample t-test was conducted to compare the mean number of weekly hospitalizations per week per client before and after the implementation of the SDP intervention. The sample consisted of 20 individuals who received the intervention. The mean difference between the two groups was 0.011 (SD = 0.0039); p<.001 (Figure 2). The calculated t-statistic was 12.61, which exceeded the critical value of 2.093. Therefore, it could be concluded that the difference between the two groups was statistically significant.

Nursing Questionnaire. Means and standard deviations for each subscale were calculated (Table 1). The acceptability subscale consisted of four items (Cronbach's alpha= .975). The mean score for nursing perception of acceptability was 3.6 (SD=2.03) out of 5. The appropriateness subscale consisted of four items (Cronbach's alpha= .979). Nursing perception of appropriateness had a mean of 4 (SD=2.85) out of 5. The feasibility subscale consisted of four items (Cronbach's alpha= .969). Nursing perception of feasibility had a mean of 4.1 (SD=1.25) out of 5 (Figure 3).

Clinical Outcomes. A considerable proportion of the participants experienced positive outcomes with reduced healthcare utilization. Of the 20 participants in the

sample, 15 participants experienced reduced amounts of ER visits/week after the implementation of the SDP, three participants experienced no change, and three had increased ER visits/week. Additionally, out of the 20 participants in the sample, 11 participants experienced reduced rates of hospitalizations/week, eight participants had no change, and one had increased hospitalizations/week.

The nursing questionnaire results indicated generally favorable responses, with mean scores ranging from 3 to 4.75 out of 5 across different aspects of the plan. These findings suggest that the nurses generally found the plan to be acceptable, appropriate, and feasible, highlighting their positive attitudes toward its use.

Discussion

Statistical analysis of the data suggest that the project reduced unplanned hospitalizations and ER visits, and the nurses displayed positive attitudes towards the plan. Barriers to the project are that some nurses only work as needed and work a minimum of one shift per month. This may have contributed to only 36% of nurses completing and sending the training document. They may have not seen the training document to sign if they were only scheduled one shift during the time period where the training document was deployed for signatures. For this reason, the training document remained in the home throughout the implementation period for nurses to use as a reference; however, data was not collected if they had read the document after the employee signature sheet was sent to the DNP Project Manager. Utilizing an online ‘read and sign’ training option is recommended in future projects as this may improve communication for nurses with various working schedules.

One variable that may have impacted the results was the difference in age of children in the pre and post intervention data. The children grew 1 year in age from the pre-intervention data to the post intervention data which may have impacted the occurrence of respiratory illnesses. As children with chronic respiratory conditions age, they may experience a reduction in the number of respiratory tract infections due to their immune systems maturing and becoming more adept at recognizing pathogens (Beacham & Deatrick, 2015). Also, with improved medical management and interventions, their chronic conditions may improve or stabilize over time, reducing their susceptibility to respiratory tract infections that lead to ER visits and hospitalizations (Beacham & Deatrick, 2015).

Another barrier to this project was finding a validated questionnaire to assess family perception of the SDP tool. There was limited research on family perception of home health nursing interventions for the pediatric population. Future projects could include family perception to better understand the impact of this project on families.

Implications for Practice

Impact on the Organization. This DNP Project had implications for the organization by improving care for home health pediatric clients. This project focused on collaboration among the provider, nurse manager, and home health nurse. Nurses gained autonomy and used their assessment skills to help quickly identify changes in status and initiate treatment. The nurses work non-overlapping shifts and are unable to verbally exchange reports of the client. The tool served as an additional resource for them to deliver patient care effectively.

Nurses helped reduce the burden of illness for immunocompromised and underserved populations by offering supporting interventions. Hospitalizations can increase mortality, be financially burdensome, and cause traumatic experiences for the child (Soto et al., 2016). This project helped reduce those burdens on families and allowed them to keep caring for their child in a home setting.

Finances. This project was supported by the nursing manager and providers. The paper and ink for the education tool for the nurses was the responsibility of the DNP Project Manager. No incentives were given to nurses to participate in this project.

Policy. The project has been added to the child's resources in the home. Although there have not been any changes to policy at this time, the SDP is now used in these clients' homes and has the potential to be used in other client's homes.

Quality of Healthcare. Rehospitalizations are often used as a quality indicator to identify a need in the healthcare system. This project's results were statistically significant in reducing hospitalizations and ER visits for pediatric home health patients by initiating supportive care at the first sign of illness.

Rural and Underserved Populations. The sample was located in the Midwest where there are many rural areas. Some of the clients live far away from a clinic and have poor access to primary care (B. Zwak, personal communication, May 6, 2022). The nurse plays a crucial role in providing access to healthcare and can provide timely interventions to help support the client in a time of need. The clients are also children and often have Medicaid coverage (B. Zwak, personal communication, May 6, 2022).

Of the three rural participants in the sample, all had reduced ER visits and hospitalization rates after the implementation of the SDP. The goal of the SDP was not to

delay medical attention in rural areas where access to care is often delayed. For this reason, the SDP stated to not delay calling 911 if respiratory demise is imminent. Future projects should account for this variable and consider time to treatment as an outcome measure.

Sustainability. This project allowed for the clinical nurse managers and providers to reassess the plan of care for the client and help maximize their orders to prevent worsening illness. For children who live in rural areas, this can be greatly beneficial and help reduce costs for families by keeping kids at home. This project can be further sustained with the help of the nurse managers. The SDP tool can be continued and filled out by clinical nurse managers and updated as needed.

Limitations. One limitation of this project includes a small sample size. Another limitation was that the intervention was completed from January-April which covers some of the respiratory season but does not include months when there is less community spread of viruses. The time frame for data collection was 1 entire year prior to the project (January 2022-January 2023). It was decided not to use only 3 months prior to the project because there was an uptick in respiratory illnesses in children during the months of November-January as this is when there is more of a community spread of respiratory viruses like respiratory syncytial virus (RSV) (Curatola et al., 2023). It was also decided not to only use the same 3 months the year prior (January 2022-April 2022) due to changes in viral spread impacted by the coronavirus 2019 pandemic. After children emerged from social distancing in the home and returned to social settings, there was a notable surge in the spread of respiratory illnesses in children. This was due to children's immune systems being less prepared to defend against infections once they returned to

activities with their peers. Additionally, the drop in adherence to preventative measures such as mask-wearing and hand hygiene likely played a significant role in the uptick of respiratory illnesses post-quarantine (Curatola et al., 2023). Further research with larger sample sizes and longer data collection periods may provide more comprehensive insights into the effectiveness of the intervention and its impact on healthcare utilization.

Recommendations for Further Projects. The key stakeholder for this project continues to look for ways to reduce illness and hospitalizations for this population. Pediatric home health clients are at a higher risk of contracting illnesses and the goal of home health is to keep the child at home receiving care. Future projects should include ways to prevent the spread of infection and use the tools the child has to help maximize care at home. Nursing will continue to be a vital part of this goal.

Conclusion

Children requiring home health nursing care have a higher risk of developing a respiratory tract infection. Acute respiratory infections can lead to unplanned hospitalizations that can be detrimental to the family both emotionally and financially (Soto et al., 2016). Overall, the project demonstrated promising outcomes for a considerable portion of the participants. There was a statistically significant reduction in unplanned hospitalizations and ER visits for children with the SDP. The positive responses from the nurses further support the acceptability, appropriateness, and feasibility of the SDP intervention in the home health setting.

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Acceptability of Intervention Measure (AIM), Intervention Appropriateness Measure (IAM), & Feasibility of Intervention Measure

Table 1

Descriptive Statistics for Study Variables

Variable	*n*	*M*	*SD*
Acceptability	21	3.6	2.03
1. The sick day plan meets my approval.	21	3.8	1.47
2. The sick day plan is appealing to me.	21	4	2.61
3. I like the sick day plan.	21	3.4	1.67
4. I welcome the sick day plan.	21	3	1.67
Appropriateness	21	4	2.85
1. The sick day plan seems fitting.	21	4	2.61
2. The sick day plan seems suitable.	21	4	2.61
3. The sick day plan seems applicable.	21	4	3.03
4. The sick day plan Seems like a good match.	21	4	2.76
Feasibility	21	4.1	1.25
1. The sick day plan seems implementable.	21	4	2.97
2. The sick day plan seems possible.	21	4	2.97
3. The sick day plan seems doable.	21	4.75	1.54
4. The sick day plan seems easy to use.	21	3.6	1.2

Figure 1

Mean ER Visits/Week/Person

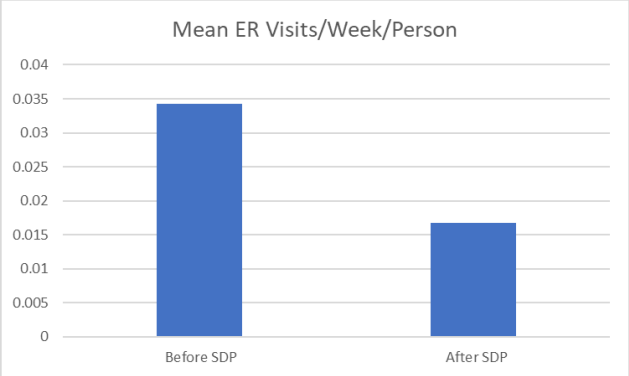


Figure 2

Mean Hospitalizations/Week/Person

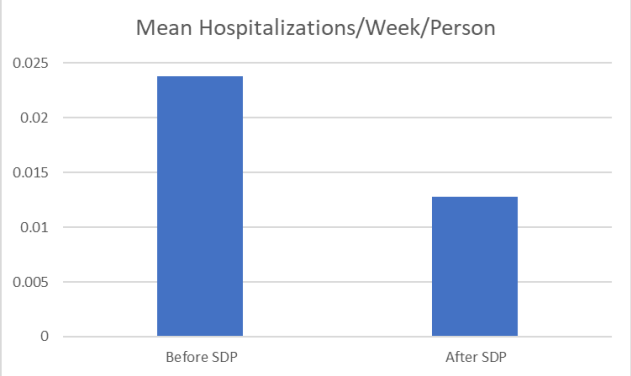
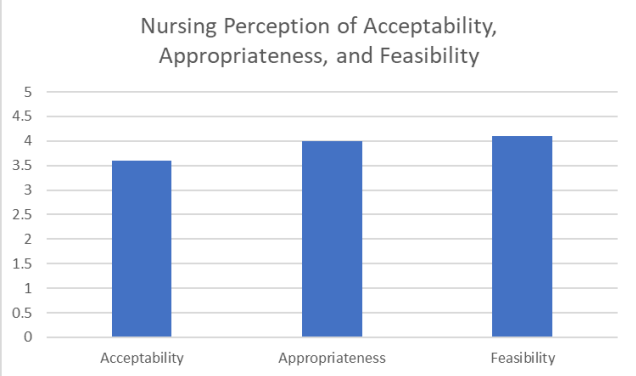


Figure 3

Nursing Perception of Acceptability, Appropriateness, and Feasibility



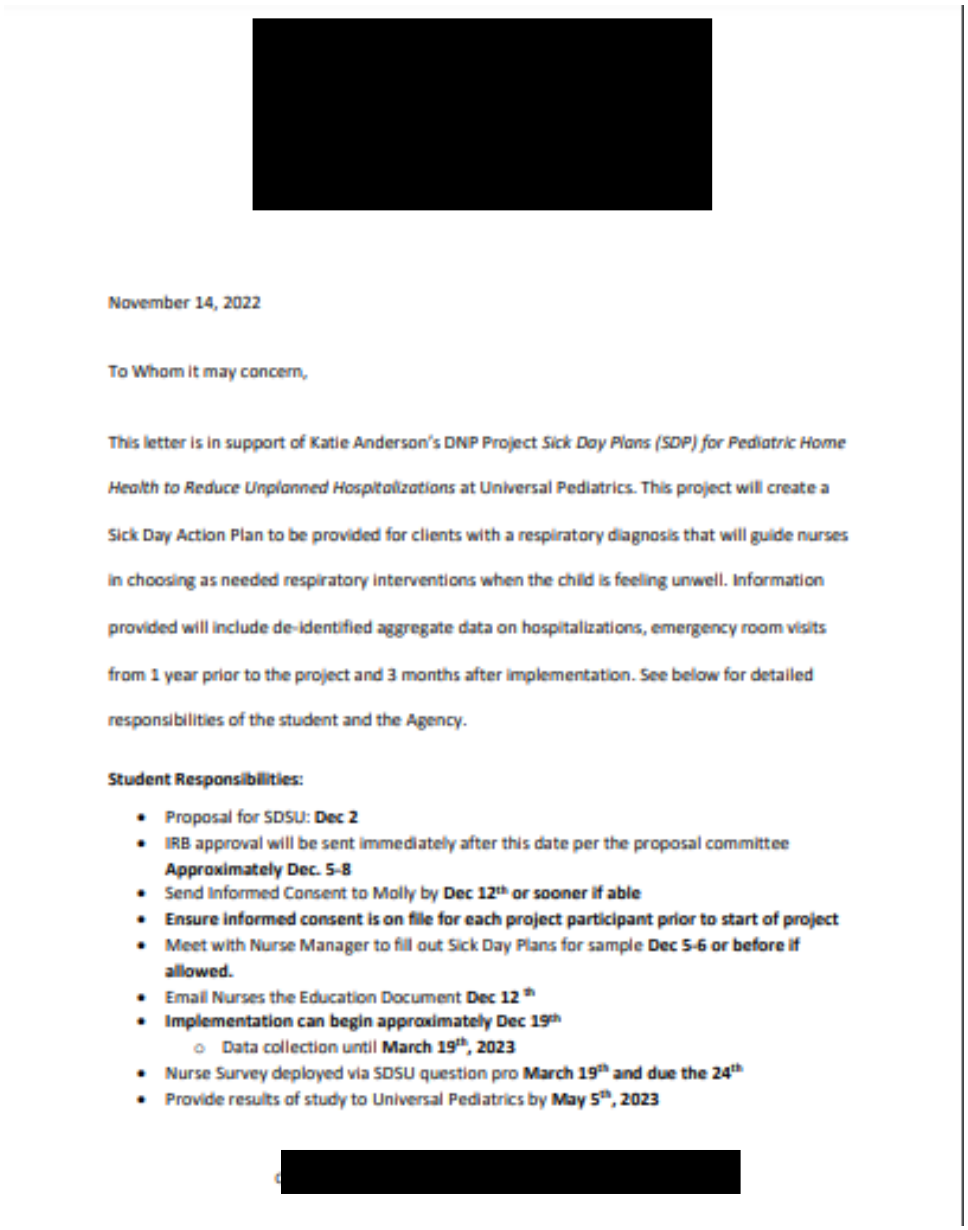
Appendix A

IRB Approval

Hello Katie Anderson,
Your application **Sick Day Plans for Pediatric Home Health to Reduce Unplanned Hospitalizations** and submitted materials have been reviewed and determined not to fit the OHRP definition for human subjects research as noted under 45 CFR 46, section 102, and thus exempt from further review by the SDSU IRB.
If you decide to make changes to your project and/or project materials, you will need to submit an amendment and receive an IRB determination prior to implementation. For assistance or for questions relating to IRB, please contact us at sdsu.irb@sdstate.edu.
Your approval number is: IRB-2212002-EXM.
We wish you the best in your study.
Sincerely,
Jayne Valnes
IRB Administrator

Appendix B

Facility Approval



[redacted]

November 14, 2022

To Whom it may concern,

This letter is in support of Katie Anderson's DNP Project *Sick Day Plans (SDP) for Pediatric Home Health to Reduce Unplanned Hospitalizations* at Universal Pediatrics. This project will create a Sick Day Action Plan to be provided for clients with a respiratory diagnosis that will guide nurses in choosing as needed respiratory interventions when the child is feeling unwell. Information provided will include de-identified aggregate data on hospitalizations, emergency room visits from 1 year prior to the project and 3 months after implementation. See below for detailed responsibilities of the student and the Agency.

Student Responsibilities:

- Proposal for SDSU: **Dec 2**
- IRB approval will be sent immediately after this date per the proposal committee **Approximately Dec. 5-8**
- Send Informed Consent to Molly by **Dec 12th or sooner if able**
- **Ensure informed consent is on file for each project participant prior to start of project**
- Meet with Nurse Manager to fill out Sick Day Plans for sample **Dec 5-6 or before if allowed.**
- Email Nurses the Education Document **Dec 12 th**
- **Implementation can begin approximately Dec 19th**
  - Data collection until **March 19th, 2023**
- Nurse Survey deployed via SDSU question pro **March 19th and due the 24th**
- Provide results of study to Universal Pediatrics by **May 5th, 2023**

[redacted]

Agency Responsibilities:

- De-identify POC so that student can fill out SDP for each client (by Nurse Manager- Brittany Zwak) on **Dec 5-6 or before if allowed.**
- Forward nurse training document via email to the nurses of those clients (Nurse Managers) on **Dec 12th.**
- De-identify and provide the following data for each client from *Dec 19th, 2021-Dec 19th, 2022* for each client from the sample by **Feb 28th, 2023.**
  - Hospitalizations
  - ER visits
- De-identify and provide data from the dates of *Dec 19th, 2022-March 19th*, 2023 **by March 24th, 2023.**
  - Hospitalizations
  - ER visits

We look forward to the results of the project.

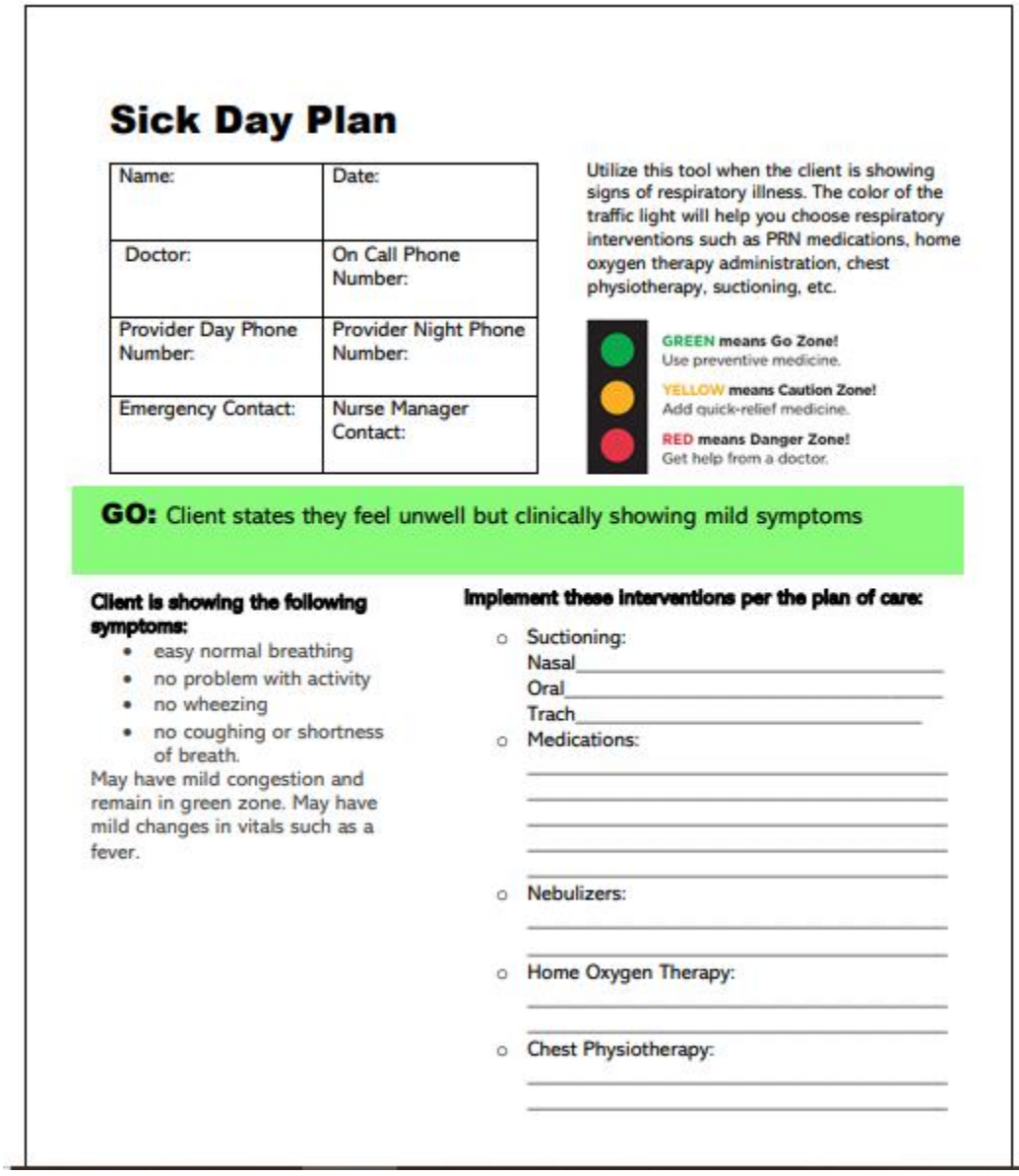
Sincerely,

[redacted]

c [redacted]

Appendix C

Sick Day Plan Example



Sick Day Plan

Name:	Date:
Doctor:	On Call Phone Number:
Provider Day Phone Number:	Provider Night Phone Number:
Emergency Contact:	Nurse Manager Contact:

Utilize this tool when the client is showing signs of respiratory illness. The color of the traffic light will help you choose respiratory interventions such as PRN medications, home oxygen therapy administration, chest physiotherapy, suctioning, etc.

GREEN means Go Zone!
Use preventive medicine.

YELLOW means Caution Zone!
Add quick-relief medicine.

RED means Danger Zone!
Get help from a doctor.

GO: Client states they feel unwell but clinically showing mild symptoms

Client is showing the following symptoms:

- easy normal breathing
- no problem with activity
- no wheezing
- no coughing or shortness of breath.

May have mild congestion and remain in green zone. May have mild changes in vitals such as a fever.

Implement these interventions per the plan of care:

- Suctioning:
  Nasal_____
  Oral_____
  Trach_____
- Medications:
  _____
  _____
  _____
  _____
  _____
- Nebulizers:
  _____
  _____
- Home Oxygen Therapy:
  _____
  _____
- Chest Physiotherapy:
  _____
  _____

Sick Day Plan

CAUTION: Move to this step at first sign of illness worsening.
Continue Green zone AND add these interventions.

Client is showing the following symptoms:

- moderate congestion, cough, nasal drainage
- waking up at night with breathing problems wheezing, coughing or shortness of breath
- breathing problems with activity
- Significant changes in Vital signs

Implement these interventions per the plan of care:

- **Suctioning:**
  Nasal_____
  Oral_____
  Trach_____
- Medications:
  _____
  _____
  _____
  _____
- Nebulizers:
  _____
  _____
- Home Oxygen Therapy:
  _____
  _____
- Chest Physiotherapy:
  _____
  _____

***For rapid increase in symptoms or above medications not giving symptom relief for 4 hours, move to Red Zone.

Sick Day Plan

DANGER: Continue green zone & yellow zone AND add these

Client is showing the following symptoms:

- moderate congestion, cough, nasal drainage
- waking up at night with breathing problems, wheezing, coughing or shortness of breath,
- breathing problems with activity.
- Significant changes in Vital signs

Implement these interventions per the plan of care:

- Suctioning:
  Nasal_____
  Oral_____
  Trach_____
- Medications:_
  _____
  _____
  _____
  _____
- Nebulizers:
  _____
  _____
- Home Oxygen Therapy:
  _____
  _____
- Chest Physiotherapy:
  _____
  _____
- ***Call 911 if client is struggling to breathe and clearly uncomfortable, no clear improvement with symptoms and you are worried about how to get through the next 30 minutes, or client's lips or fingernails are blue.

Appendix D
Nursing Education Handout

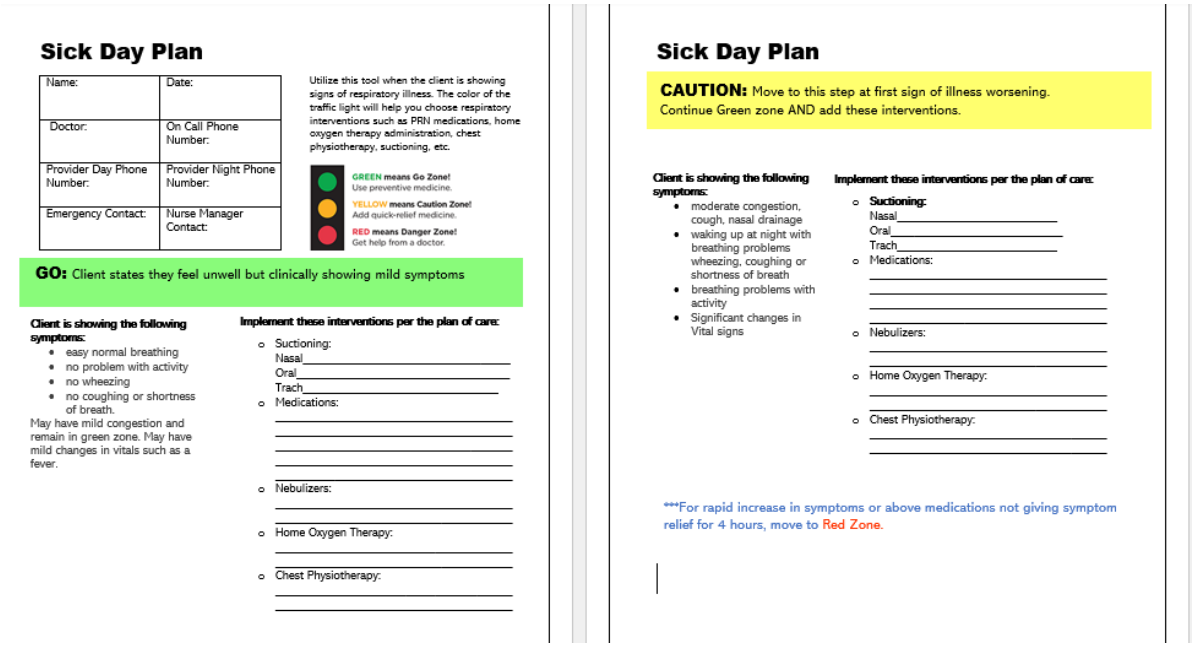
Hello Nurses,

This winter, [redacted] was piloting a nursing tool that was used by nurses when the client is feeling unwell or having a "sick day". The tool is called a sick day plan. These tools can be used by nurses as a guide to interventions when the child is showing signs of illness. All interventions must match the client's orders and all interventions must be charted on using Kantime. ****Once you have read this education, please initial and date on the following page.**

- **Who:** For home health nurses to utilize and refer to when the client is having signs and symptoms of a respiratory illness.
- **What:** The plan is a 3-page document that categorizes zones of severity of illness, and each zone offers an organized list of respiratory interventions that are appropriate at that time based on the child's standing PRN orders and the child's presentation. These zones include:
    - **GREEN: GO!** The child is clinically showing mild symptoms but states they feel unwell.
        - The child may have easy worth of breathing, no problems with activity, no wheezing, no cough or shortness of breath, may have mild congestion.
    - **YELLOW: CAUTION.** The child is showing a progression of symptoms and may need increased interventions
        - The child may have moderate congestion, cough, nasal drainage, is waking up at night with breathing problems, wheezing, coughing, or showing shortness of breath, is having breathing problems with activity, is showing significant changes in vital signs.
    - **RED: DANGER.** The child's symptoms have continued to progress, and more interventions are needed, or 911 needs to be called.
        - The child is having moderate congestion, cough, nasal drainage, is waking up at night frequently with breathing problems, is coughing or is short of breath, is having significant breathing problems with activity, has significant changes in vital signs.
    - Interventions that was included are suctioning, PRN medications, nebulizer treatments, home oxygen therapy, and chest physiotherapy. Interventions must match with the client's standing orders.
- **When:** The sick day plans was added to the client's plan of care on _____ and first day of use was on _____.
- **Where:** The sick day plans was located in the child's plan of care binder in the child's home.

Please refer any questions to the clinical nurse manager for your client or to Katie Anderson at [redacted]

Sick day plan Example:



Sick Day Plan

Name:	Date:
Doctor:	On Call Phone Number:
Provider Day Phone Number:	Provider Night Phone Number:
Emergency Contact:	Nurse Manager Contact:

Utilize this tool when the client is showing signs of respiratory illness. The color of the traffic light will help you choose respiratory interventions such as PRN medications, home oxygen therapy administration, chest physiotherapy, suctioning, etc.

GREEN means Go Zone! Use preventive medicine.
YELLOW means Caution Zone! Add quick-relief medicine.
RED means Danger Zone! Get help from a doctor.

GO: Client states they feel unwell but clinically showing mild symptoms

Client is showing the following symptoms:
- easy normal breathing
- no problem with activity
- no wheezing
- no coughing or shortness of breath.

May have mild congestion and remain in green zone. May have mild changes in vitals such as a fever.

Implement these interventions per the plan of care:
- Suctioning:
  Nasal_____
  Oral_____
  Trach_____
- Medications:
  _____
  _____
  _____
  _____
  _____
- Nebulizers:
  _____
  _____
- Home Oxygen Therapy:
  _____
  _____
- Chest Physiotherapy:
  _____
  _____

Sick Day Plan

CAUTION: Move to this step at first sign of illness worsening. Continue Green zone AND add these interventions.

Client is showing the following symptoms:
- moderate congestion, cough, nasal drainage
- waking up at night with breathing problems wheezing, coughing or shortness of breath
- breathing problems with activity
- Significant changes in Vital signs

Implement these interventions per the plan of care:
- **Suctioning:**
  Nasal_____
  Oral_____
  Trach_____
- Medications:
  _____
  _____
  _____
  _____
- Nebulizers:
  _____
  _____
- Home Oxygen Therapy:
  _____
  _____
- Chest Physiotherapy:
  _____
  _____

***For rapid increase in symptoms or above medications not giving symptom relief for 4 hours, move to Red Zone.

Sick Day Plan

DANGER: Continue green zone & yellow zone AND add these

Client is showing the following symptoms:
- moderate congestion, cough, nasal drainage
- waking up at night with breathing problems, wheezing, coughing or shortness of breath,
- breathing problems with activity.
- Significant changes in Vital signs

Implement these interventions per the plan of care:
- Suctioning:
  Nasal_____
  Oral_____
  Trach_____
- Medications:
  _____
  _____
  _____
  _____
- Nebulizers:
  _____
  _____
- Home Oxygen Therapy:
  _____
  _____
- Chest Physiotherapy:
  _____
  _____
- ***Call 911 if client is struggling to breathe and clearly uncomfortable, no clear improvement with symptoms and you are worried about how to get through the next 30 minutes, or client's lips or fingernails are blue.

Please initial and date once you have read this education document.

Appendix E
Acceptability of Intervention Measure (AIM), Intervention Appropriateness Measure (IAM), & Feasibility of Intervention Measure

Response Scale:
1 = Completely disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Completely agree

Scoring Instructions: Scales can be created for each measure by averaging responses. Scale values range from 1 to 5. No items need to be reverse coded.

Acceptability of Intervention Measure (AIM)

1) [Triple P/Implementation Strategy] meets my approval.
2) [Triple P/Implementation Strategy] is appealing to me.
3) I like [Triple P/Implementation Strategy].
4) I welcome [Triple P/Implementation Strategy].

Intervention Appropriateness Measure (IAM)

1) [Triple P/Implementation Strategy] seems fitting.
2) [Triple P/Implementation Strategy] seems suitable.
3) [Triple P/Implementation Strategy] seems applicable.
4) [Triple P/Implementation Strategy] seems like a good match.

Feasibility of Intervention Measure (FIM)

1) [Triple P/Implementation Strategy] seems implementable.
2) [Triple P/Implementation Strategy] seems possible.
3) [Triple P/Implementation Strategy] seems doable.
4) [Triple P/Implementation Strategy] seems easy to use.

(Weiner et al., 2017)

Appendix F

Nursing Questionnaire

Acceptability	Completely Disagree	Disagree	Neither Agree nor Disagree	Agree	Completely Agree
1. The sick day plan meets my approval.					
2. The sick day plan is appealing to me.					
3. I like the sick day plan					
4. I welcome the sick day plan					
Intervention Appropriateness					
1. The sick day plan seems fitting					
2. The sick day plan seems suitable.					
3. The sick day plan seems applicable.					
4. The sick day plan Seems like a good match.					
Feasibility					
1. The sick day plan seems implementable.					
2. The sick day plan seems possible.					
3. The sick day plan seems doable.					
4. The sick day plan seems easy to use.					

(Weiner et al., 2017)

Appendix G
Data Report Sheet

Client Number	Age	Ethnicity	Rural/Urban Residence	Diagnosis	Trach	CPAP	BIPAP	Emergency Room Dates	Hospitalization Dates