

Quality Improvement For Inpatient Chemotherapy Induced Anti-Emetic Management in the Pediatric Hematology Oncology Department at Children's Hospital New Orleans

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Background

- Chemotherapy Induced Nausea and Vomiting (CINV) is the most common adverse effect of cancer treatment
- CINV can lead to significant impacts on quality of life
- Highly emetogenic agents produce emesis in 90% of patients in the absence of prophylaxis

Aims

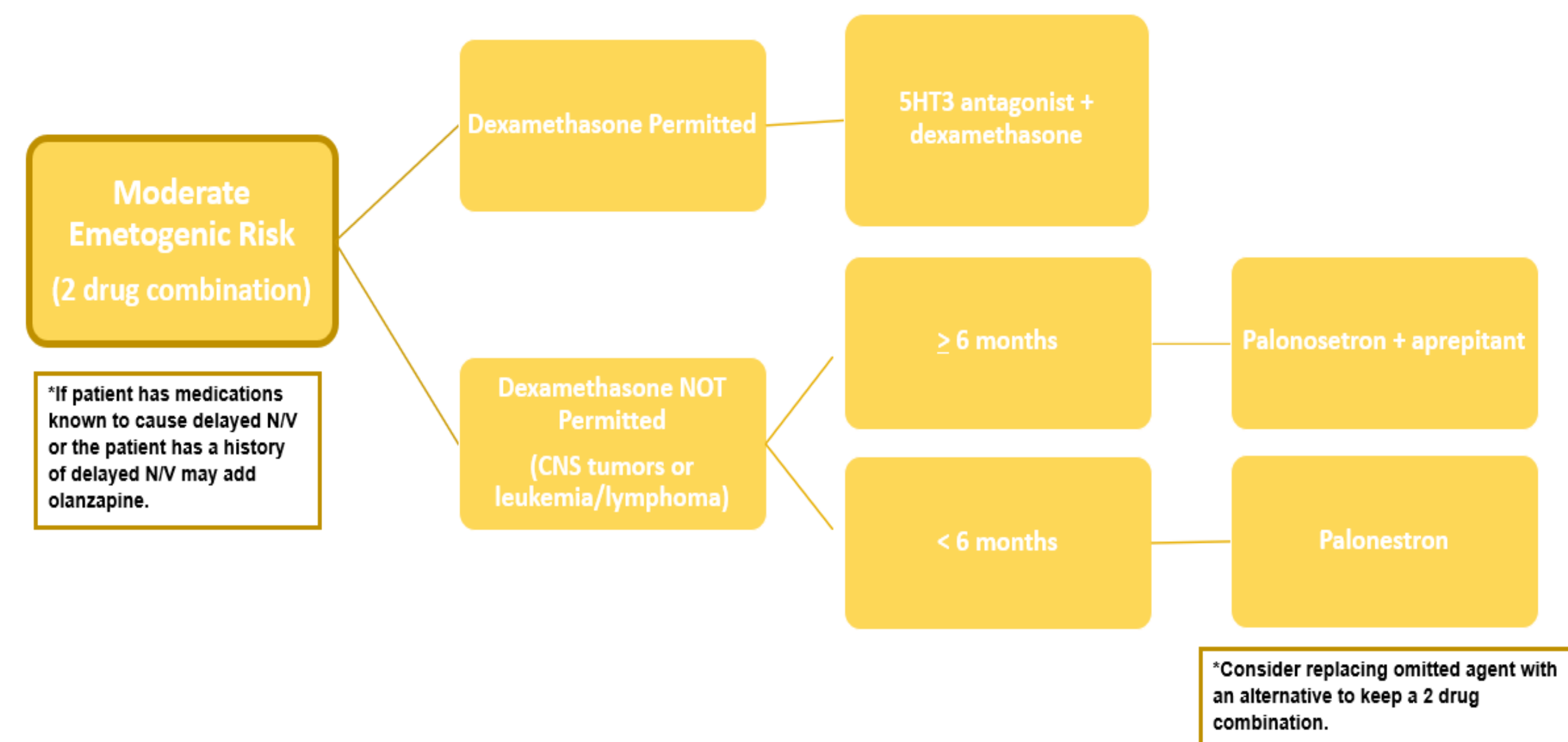
- Improve adherence to national guidelines in 75% of inpatient chemotherapy encounters
- Reduce episodes of CINV
- Decrease length of hospital stay related to CINV

Interventions

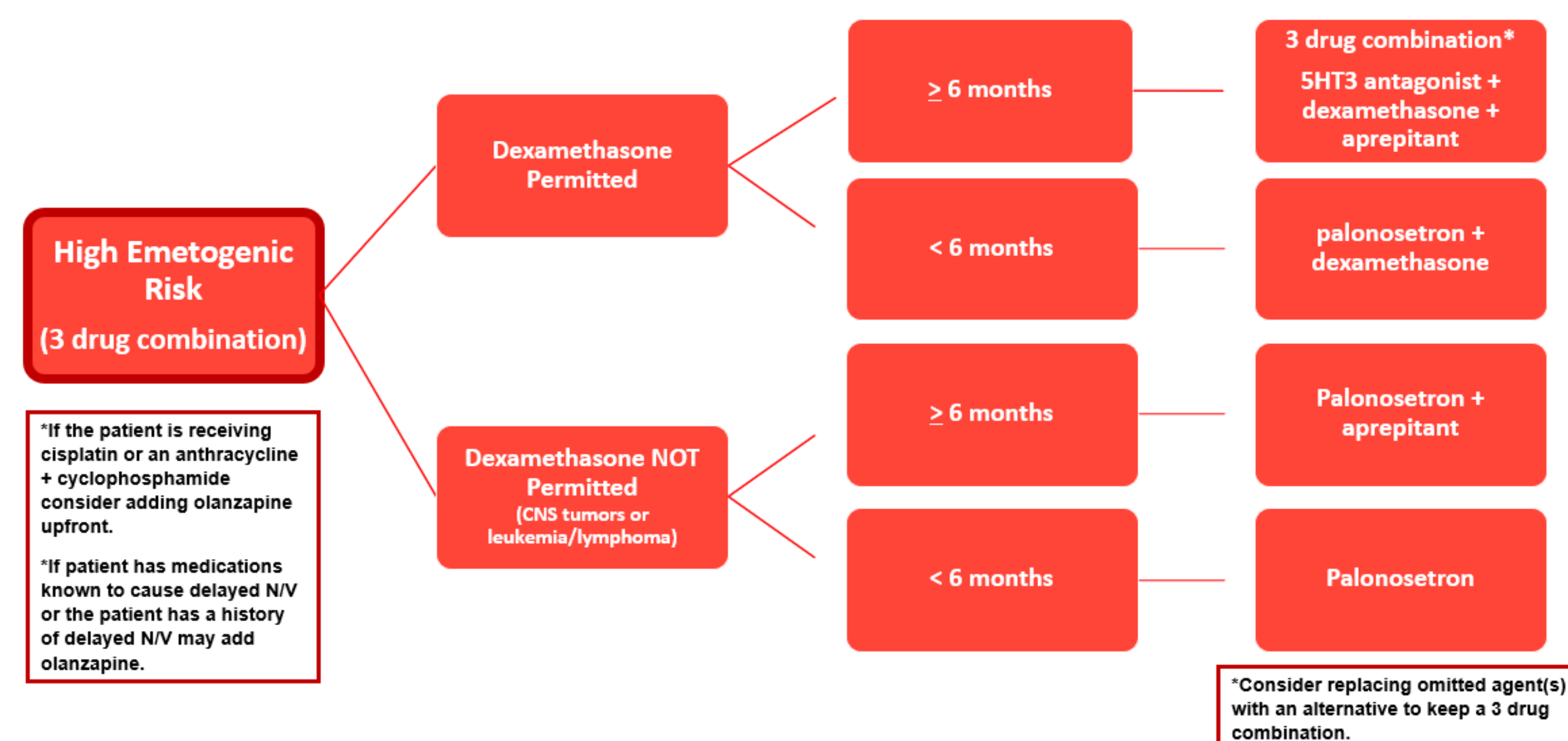
- Created Algorithm using the emetogenic potential of each chemotherapeutic based on national guidelines
- Incorporation of the use of Palonosetron into hospital formulary
- Staff education
- Epic build
- Post data analysis underway

Algorithm

Moderate Level Risk (30-90% frequency of emesis in absence of prophylaxis)	<ul style="list-style-type: none"> • Aldesleukin >12-15 million units/m² • Alemtuzumab • Amifostine >300 mg/m² • Arsenic trioxide • Azacitidine • Bendamustine • Busulfan IV (adults) • Carboplatin <175mg/m² • Cabozantinib (oral) • Carmustine < 250mg/m² • Certinib (oral) • Clofarabine • Crizotinib (oral) • Cyclophosphamide ≥500mg/m² (peds), <1,500mg/m² (adults) 	<ul style="list-style-type: none"> • Cytarabine ≥75mg/m² (peds), >1,000mg/m² (adults) • Dactinomycin ≥10 mcg/kg • Daunorubicin • Dinutuximab • Doxorubicin >10 to 30mg/m² (peds), <60mg/m² (adults) • Epirubicin • Gemtuzumab 3-9mg/m² • Idarubicin • Ifosfamide • Imatinib >260mg/m²/day • Interferon alfa-2b ≥10 million units/m² • Irinotecan • Irinotecan (liposomal) • Lenvatinib (oral) 	<ul style="list-style-type: none"> • Lomustine • Melphalan IV (adults) • Methotrexate ≥5g/m² (peds), ≥250mg/m² (adults) • Oxaliplatin >75 mg/m² • Trabectedin • Vinoreline (oral) • Romidepsin • Temozolomide (adults) • Topotecan (oral) 0.4-2.3mg/m²/day COMBINATIONS <ul style="list-style-type: none"> • Cytarabine 60-90m/m² + methotrexate 90-150mg/m² • Cytarabine + liposomal daunorubicin • Liposomal doxorubicin ≥20mg/m² + methotrexate ≥120mg/m²
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High Level Risk (>90% frequency of emesis in absence of prophylaxis) Highly Emetogenic Combinations	<ul style="list-style-type: none"> • Altretamine • Asparaginase ≥20,000 units/m² (peds) • Busulfan IV ≥ 0.8mg/kg (peds) • Busulfan (oral) ≥1mg/kg (peds), ≥4mg/day (adults) • Carboplatin ≥175mg/m² • Carmustine >250 mg/m² • Cisplatin ≥12mg/m² (peds), all doses (adults) • Cyclophosphamide ≥1,200 mg/m² (peds), ≥1,500mg/m² (adults) 	<ul style="list-style-type: none"> • Cytarabine ≥ 3,000 mg/m² (peds) • Dacarbazine • Dactinomycin ≥1.35mg/m² (peds), all doses (adults) • Doxorubicin ≥ 30 mg/m² (peds), ≥60mg/m² (adults)chno • Mechlorethamine • Melphalan IV (peds) • Methotrexate ≥12,000 mg/m² • Procarbazine (oral) ≥100mg/m² • Streptozocin • Thiotepa ≥300 mg/m² 	COMBINATIONS <ul style="list-style-type: none"> • Cyclophosphamide + an anthracycline • Cytarabine ≥90 mg/m² + methotrexate ≥150mg/m² • Cytarabine + teniposide • Dacarbazine ≥250mg/m² + doxorubicin ≥60mg/m² • Dactinomycin 900 mcg/m² + ifosfamide 3g/m² • Etoposide ≥60mg/m² + ifosfamide ≥1.2g/m² • Etoposide ≥250mg/m² + thiotepa ≥300mg/m²
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Retrospective Data Analysis Results

- 47 individual patients, pulled from the new cancer diagnoses of 2020, met criteria of requiring inpatient chemotherapy
- 63% were male with an average age of 9.8 years old
- Hematologic malignancies encompassed the majority of cases with 55%, followed by Solid tumors and CNS tumors with 40% and 5% respectively
- 242 inpatient chemotherapy encounters with the average length of stay being 7.3 days
- 59% of encounters used highly emetogenic regimens with only 30% of those being adherent to national CINV guidelines
- These results highlight the room for improvement in supportive care measures for pediatric patients undergoing cancer treatment
- Results of our post-data is soon to follow.