Cancer Control and Supportive Care in the Children's Oncology Group: Nursing Roles and Recent Results

Jessica Ward, PhD, MPH, RN,CPNP
Melissa Beauchemin, PhD, RN, CPNP

COG Educational Track at APHON 2020

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Objectives

1. To describe areas of COG Cancer Control and Supportive Care research and domains within the CCL committee.

2. To discuss findings from recently completed and published CCL trials and considerations for clinical applications of these findings.

3. To obtain insight into roles for COG nurses within the CCL Committee and studies conducted by CCL.

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Disclosure

- Jessica Ward and Melissa Beauchemin have no industry relationships.
- Off label use will not be discussed.

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COG Disclosure

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Cancer Control and Supportive Care Committee

- Survival for children with cancer has improved to over 80% (Ward, E. et al, 2014)
- CCL develops trials to understand and manage symptoms and toxicities that impair QOL and those that result in mortality (Sung, L. et al, 2013)

Nurses play a critical role in CCL at all levels of study development, implementation, and dissemination

(Haugen, M. et al, 2016)

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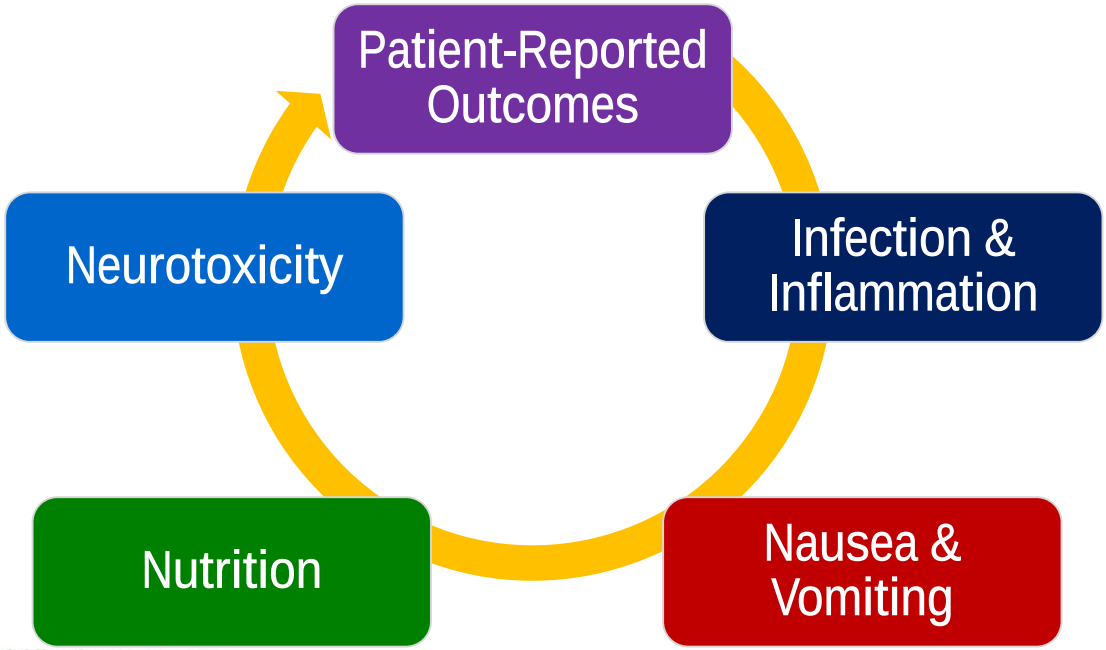
Cancer Control and Supportive Care Committee (CCL) Overview

CCL Research Priorities



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CCL Research Priorities

CCL Domain	Focus
Infection and Inflammation	• Mucositis • Bacteremia/IFD • Use of prophylactic growth factors
Nausea and Vomiting	• Prophylaxis for highly emetogenic chemotherapy
Nutrition	• Cachexia • Hepatotoxicity • Probiotics (GI GVHD)
Neurotoxicity	• Cognitive dysfunction • Peripheral neuropathy • Hearing loss
Patient-Reported Outcomes	• Symptom assessment and management • Embedded aims on therapeutic trials • QOL

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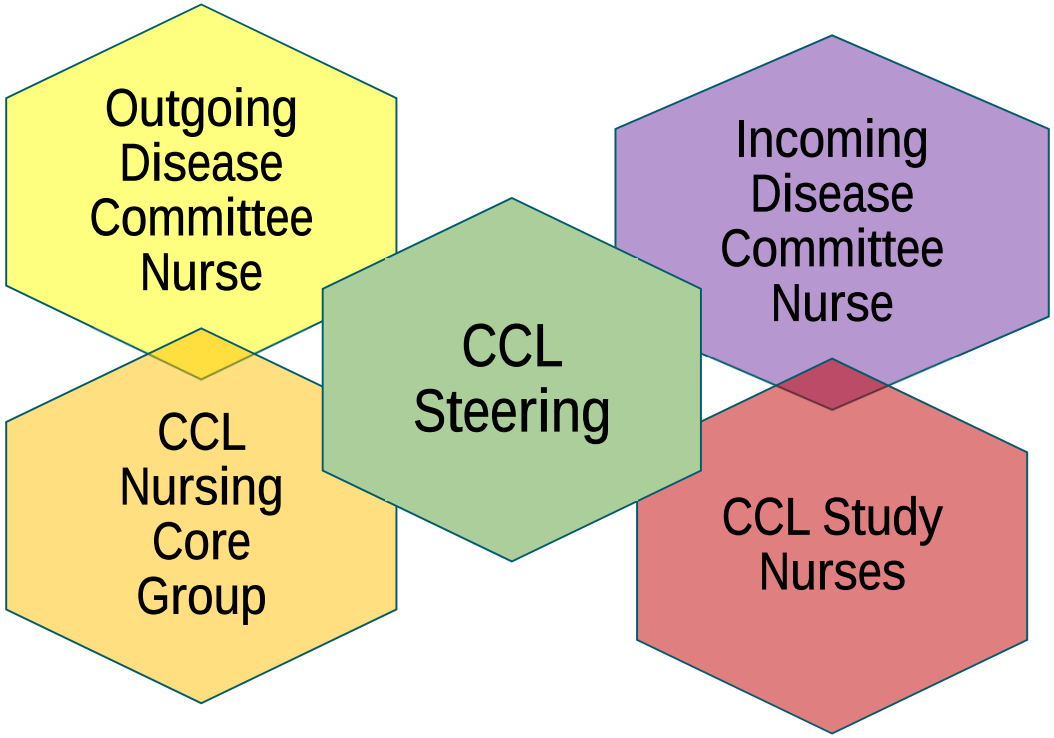
Nursing Roles in CCL



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ACCL0933 (CCL Domain – Infection and Inflammation)

A Randomized Open-Label Trial of Caspofungin vs. Fluconazole to Prevent Invasive Fungal Infections in Children Undergoing Chemotherapy for AML
A Groupwide Phase III Study
Activated: 04/04/2011, Closed: 11/11/2016

Research

JAMA | Original Investigation

Effect of Caspofungin vs Fluconazole Prophylaxis on Invasive Fungal Disease Among Children and Young Adults With Acute Myeloid Leukemia
A Randomized Clinical Trial

Brian T. Fisher, DO, MSCE; Theoklis Zaoutis, MD, MSCE; Christopher C. Dvorak, MD; Michael Nieder, MD; Danielle Zerr, MD, MPH; John R. Wingard, MD; Colleen Callahan, MSN, CRNP; Doojduen Villaluna, MS; Lu Chen, PhD; Ha Dang, PhD; Adam J. Esbenshade, MD, MSCI; Sarah Alexander, MD; Joseph M. Wiley, MD; Lillian Sung, MD, PhD

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JAMA 2019; 322(17): 1673-1681 9

ACCL0933 Background, Objective and Schema

Background:

Children/AYAs with AML are at high risk for IFD with mostly *Candida* and *Aspergillus*. Effective prophylaxis strategies are needed.

Primary Objective:

To determine the efficacy of caspofungin vs. fluconazole in preventing **proven or probable** IFD during prolonged neutropenia in children/ AYAs with AML.

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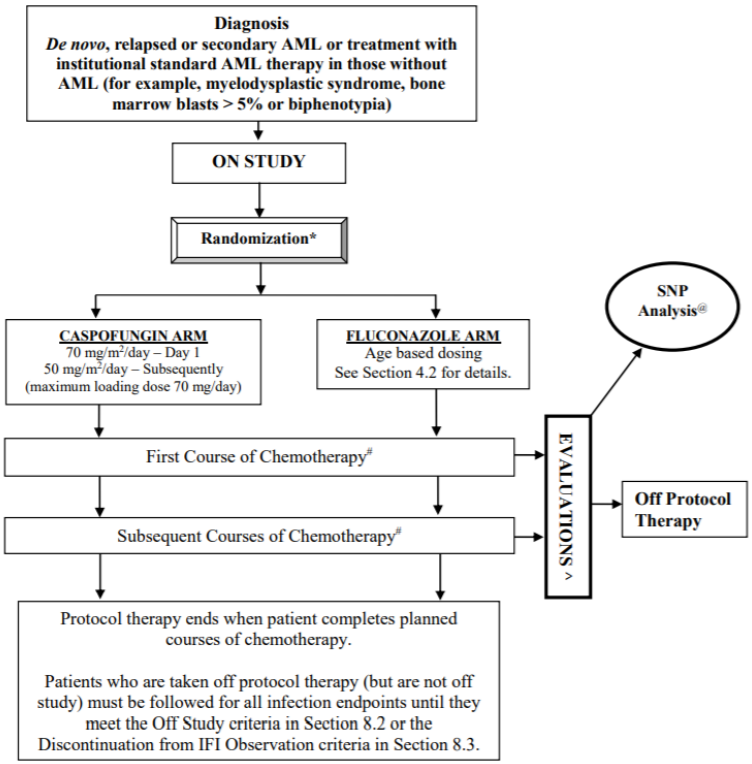

Experimental Schema ACCL0933 Protocol

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ACCL0933 Methods

- **Study Design:** Randomized, open-label trial (unblinded)
- **Randomized 1:1**
  - Caspofungin: *70mg/m^2 day 1, then 50mg/m^2 per day IV*, **or**
  - Fluconazole:
    - 3mos-17.99 yrs: *12mg/kg daily,*
    - 18-30 years: *6mg/kg/day (max dose 400mg IV or oral)*
- **Eligibility:**
  - 3 mos-30 yrs
  - Newly diagnosed or relapsed AML
- **Prophylaxis:** started 24-72 hrs after each chemo cycle completed, until post-nadir
- **Primary Outcome:** proven or probable IFD (blinded central review)

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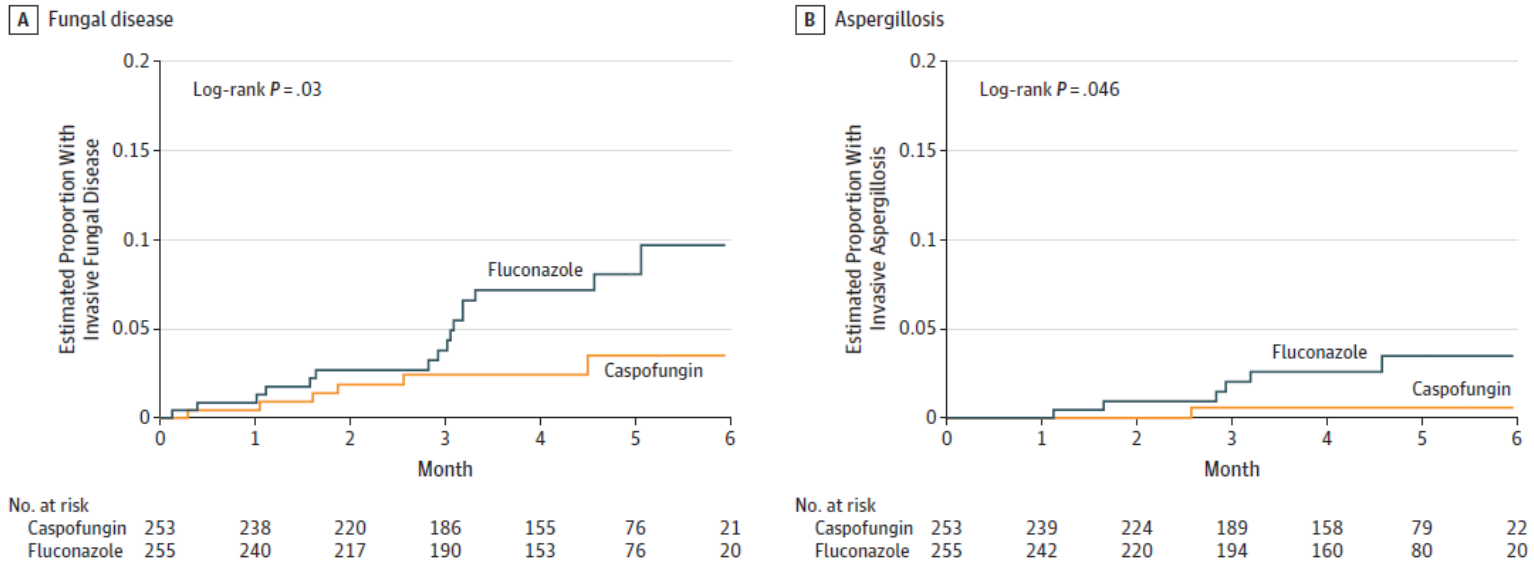
ACCL0933 Results



A, Median follow-up time for invasive fungal disease was 4.4 months (interquartile range [IQR], 3.0-5.2) for caspofungin and 4.6 months (IQR, 3.3-5.2) for fluconazole. B, Median follow-up time for invasive aspergillosis was 4.4 months (IQR, 3.0-5.2) for caspofungin and 4.6 months (IQR, 3.3-5.3) for fluconazole.

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Fisher et al. *JAMA* 2019; 322(17): 1673-1681 [12]

ACCL0933 Conclusions

- Terminated early after enrolling 517 patients
  - Limitation: early termination due to unplanned interim analysis that suggested futility
    - Reduces precision in comparing IFD between prophylaxis groups
    - Decrease ability to determine adverse events

Antifungal prophylaxis with Caspofungin resulted in significantly lower incidence of IFD (proven or probable) in children/AYAs with AML compared to fluconazole

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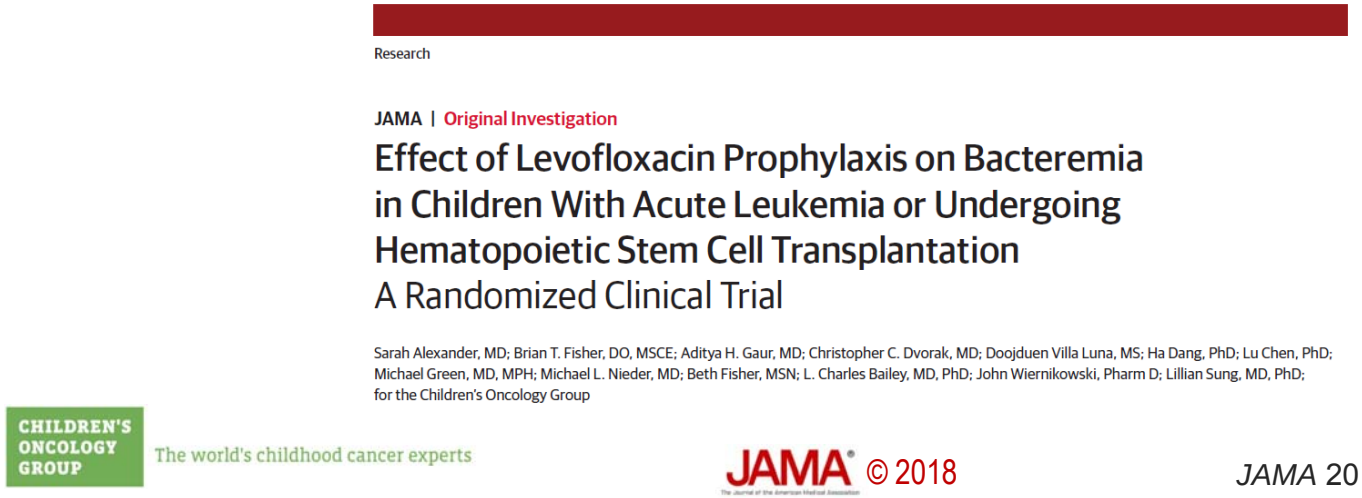
ACCL0934 (CCL Domain – Infection and Inflammation)

A Randomized Trial of Levofloxacin to Prevent Bacteremia in Children Treated for Acute Leukemia or Undergoing Hematopoietic Stem Cell Transplantation

A Groupwide Phase III Study
Activated: 06/20/2011, Closed: 10/21/2016



Research

JAMA | Original Investigation

Effect of Levofloxacin Prophylaxis on Bacteremia in Children With Acute Leukemia or Undergoing Hematopoietic Stem Cell Transplantation
A Randomized Clinical Trial

Sarah Alexander, MD; Brian T. Fisher, DO, MSCE; Aditya H. Gaur, MD; Christopher C. Dvorak, MD; Doojduen Villa Luna, MS; Ha Dang, PhD; Lu Chen, PhD; Michael Green, MD, MPH; Michael L. Nieder, MD; Beth Fisher, MSN; L. Charles Bailey, MD, PhD; John Wiernikowski, Pharm D; Lillian Sung, MD, PhD; for the Children's Oncology Group

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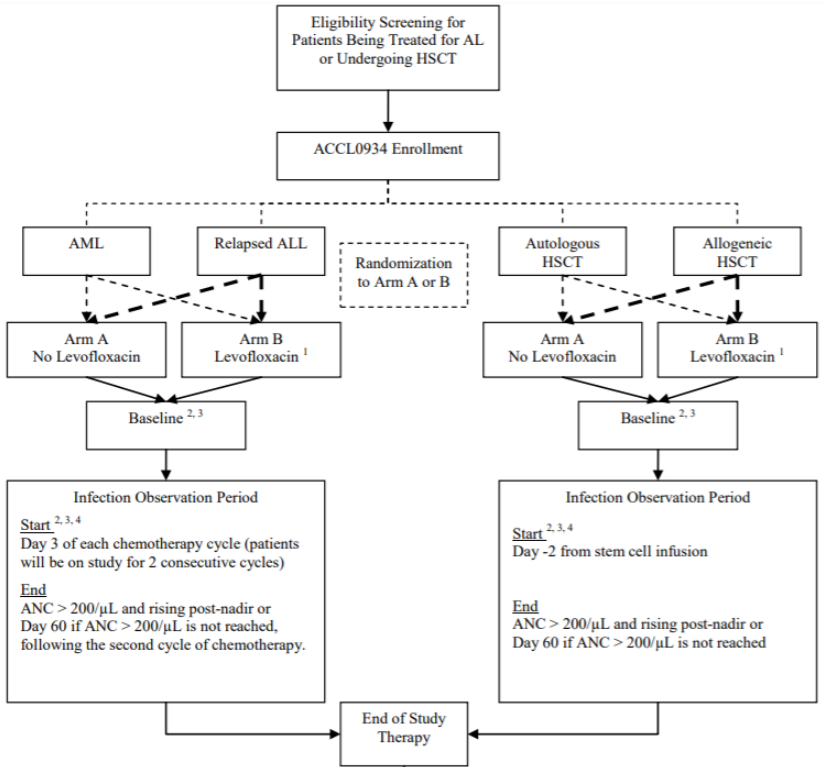
JAMA 2018; 320(10):995-1004 14

ACCL0934 Background, Objectives, Schema

Background:
Bacteremia causes morbidity and mortality in children with acute leukemias (AL).
Evidence is needed to determine the risks and benefits of prophylactic antibiotics.

Primary Objective:
To determine whether prophylactic levofloxacin during neutropenia decreases the risk of bacteremia in children with AL or undergoing HCT.

Secondary Objective:
To evaluate AEs and outcomes associated with prophylaxis.



Experimental Schema ACCL0934 Protocol

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ACCL0934 Methods

- **Study Design:** Randomized, open-label trial (unblinded), phase 3
  - Randomized 1:1
    - Levofloxacin starting on day 3 of therapy until ANC >200/µl, day 60 or next chemo cycle (6mo to 5yrs: *10mg/kg BID*, 5yr and older: *20 mg/kg daily given oral or IV)*
    - No antibiotic prophylaxis
- **Eligibility:**
  - 6 mo-21 years
    - Enrolled in 2 groups (AL or myeloablative HCT)
  - Any AML or relapsed ALL
- **Primary Outcome:** true bacteremia
- **Secondary Outcomes:** fever and neutropenia, severe infection (death), IFD, *c. diff*-associated diarrhea, musculoskeletal conditions, bacterial resistance

+ fungal culture

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ACCL0934 Results

Enrollment	624 pts • 200 w AL • 424 undergoing HCT
Pts with AL	Bacteremia less likely in levo group vs. control
Pts with HCT	No significant difference in bacteremia in levo group vs. control

Table 2. Comparison of Bacteremia Incidence per Patient During the Infection Observation Period and Bacteremia Rate per 1000 Patient-Days Between Randomized Groups for Acute Leukemia and HSCT Groups (N = 613)

	Bacteremia Incidence, No./Total (%)		Risk Difference, % (95% CI)	Risk Ratio (95% CI)	*P* Value
	Levofloxacin	No Prophylaxis			
Primary Analysis[a]					
Total acute leukemia	21/96 (21.9)	43/99 (43.4)	21.6 (8.8-34.4)	0.50 (0.32-0.78)	.001
AML	15/64 (23.4)	25/63 (39.7)	16.3 (0.3-32.2)	0.59 (0.35-1.01)	.05
Relapsed ALL	6/32 (18.8)	18/36 (50.0)	31.2 (10.1-52.5)	0.38 (0.17-0.83)	.007
Total HSCT	23/210 (11.0)	36/208 (17.3)	6.3 (0.3-13.0)	0.63 (0.39-1.03)	.06
Autologous	3/79 (3.8)	9/78 (11.5)	7.7 (0.51-16.0)	0.33 (0.09-1.17)	.07
Allogeneic	20/131 (15.3)	27/130 (20.8)	5.5 (3.8-14.8)	0.74 (0.43-1.24)	.25
Post hoc Analysis[b]					
	Bacteremia Rate/1000 Patient-Days (95% CI)			Adjusted Rate Ratio (95% CI)[c]	
Total acute leukemia	4.9 (3.3-7.3)[c]	9.4 (7.1-12.3)[c]	4.3 (1.3-7.4)	0.52 (0.32-0.85)	.008
Person-days of observation, No.	5327	5973			
Total HSCT	5.3 (3.5-8.0)[c]	10.0 (6.6-14.8)[c]	5.2 (1.1-9.3)	0.53 (0.32-0.88)	.02
Person-days of observation, No.	4042	3766			

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Alexander et al. *JAMA* 2018; 320(10):995-1004 [17]

ACCL0934 Results

- Patients in the levofloxacin group were less likely to have fever and neutropenia
- Other secondary were not significantly different based on group assignment

Table 3. Secondary Outcomes for All Patients by Allocation Among All Patients

	Levofloxacin (n = 306)[a]	No Prophylaxis (n = 307)[a]	Risk or Rate Difference (95% CI)	Adjusted OR (95% CI)[b]	*P* Value
Secondary outcomes, No. (%)					
Fever and neutropenia	218 (71.2)	252 (82.1)	10.8 (4.2 to 17.5)	0.54 (0.37 to 0.79)	.002
Severe infection[c]	11 (3.6)	18 (5.9)	2.3 (−1.1 to 5.6)	0.60 (0.28 to 1.30)	.20
Invasive fungal disease	9 (2.9)	6 (2.0)	−1.0 (−3.4 to 1.5)	1.55 (0.54 to 4.43)	.41
C difficile-associated diarrhea[d]	7 (2.3)	16 (5.2)	2.9 (−0.1 to 5.9)	0.43 (0.17 to 1.05)	.07
Any musculoskeletal condition, No. (%)[e]					
Baseline	18/303 (5.9)	30/300 (10.0)	4.1 (−0.3 to 8.4)	0.57 (0.31 to 1.05)	.07
2 mo	23/201 (11.4)	39/240 (16.3)	4.8 (−1.6 to 11.2)	0.66 (0.38 to 1.15)	.15
12 mo	13/129 (10.1)	21/146 (14.4)	4.3 (−3.4 to 12.0)	0.67 (0.32 to 1.40)	.28

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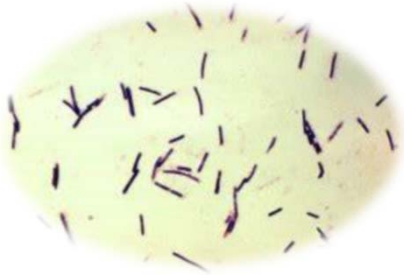
Alexander et al. *JAMA* 2018; 320(10):995-1004 18

ACCL0934 Conclusions

- Levofloxacin effective at reducing bacteremia in AL cohort but not those undergoing HCT
  - Perhaps due to:
    - fewer bacteremia events in HCT cohort or,
    - a shorter duration of neutropenia



+ c.diff culture

- *c.diff* positive test results
  - Less common
  - Increased acquisition of resistant bacterial strains was not observed in the levofloxacin group, possibly due to less ABX treatment exposure
- **Limitation:** Cohort of AL patients was terminated early for efficacy so the effect of levofloxacin may have been overestimated

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ACCL1031 (CCL Domain – Infection and Inflammation)

A Randomized Double Blinded Trial of Topical Caphosol to Prevent Oral Mucositis in Children Undergoing Hematopoietic Stem Cell Transplantation
A Groupwide Phase III Study
Activated: 03/14/2011, Closed: 06/06/2014

Caphosol for prevention of oral mucositis in pediatric myeloablative haematopoietic cell transplantation

Nathaniel Treister[*,1,2], Michael Nieder[3], Christina Baggott[4], Ellen Olson[5], Lu Chen[6], Ha Dang[6,7], Mark Krailo[6,7], Amanda August[8] and Lillian Sung[9]

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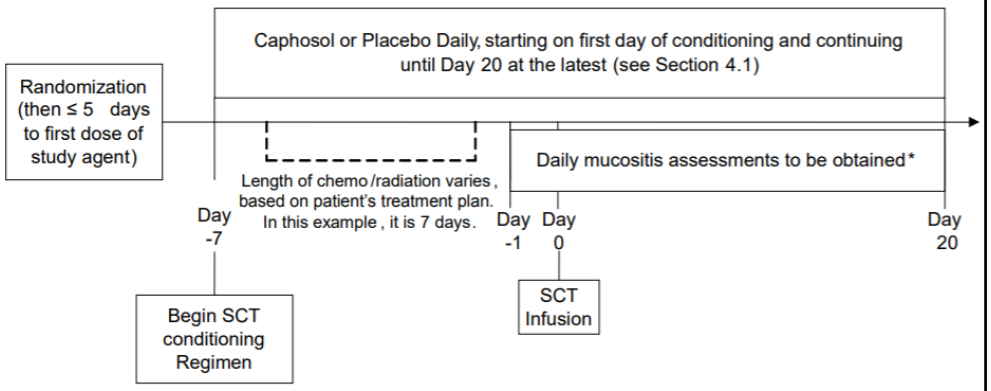
ACCL1031 Background, Objective, Schema

Background:
OM is painful, debilitating and a frequent complication for children undergoing HCT.

Primary Objective:
To determine whether caphosol starting at beginning of conditioning reduces duration of severe OM compared with placebo saline solution in children/adolescents undergoing myeloablative HCT.



Experimental Schema ACCL1031 Protocol

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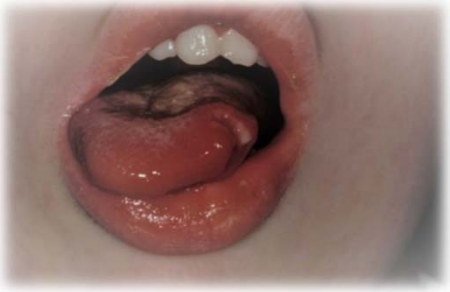
ACCL1031 Methods

- **Study Design:** Randomized, double-blinded, placebo-controlled, phase 3
  - Randomized 1:1
    - Randomization stratified by graft type (auto or allo) and conditioning regimen (TBI or melphalan vs. neither)
    - Caphosol (or placebo) QID, started first day of conditioning through day +20 or hospital discharge
- **Eligibility:**
  - 4 - 21 years, scheduled to undergo myeloablative auto or allo HCT
  - Malignant or non-malignant conditions
- **Primary Outcome:** WHO Oral Toxicity grading scale
  - 0 (no mucositis) to 4 (ulcers, alimentation not possible).
- **Secondary Outcomes:** mucositis severity (MPCRS and OMDQ), opioid/TPN use, F&N, invasive bacterial infections



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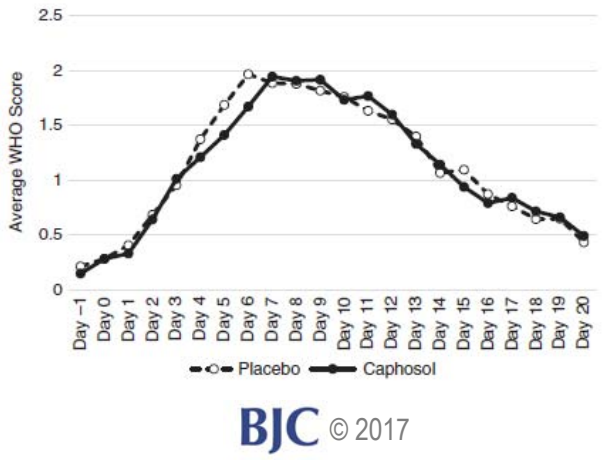
ACCL1031 Results

- Severe oral mucositis was not reduced in the Caphosol arm
- No statistically significant differences in any of the secondary endpoints between arms

Table 2. Primary and secondary mucositis end points in evaluable patients by allocation[a]

	Placebo, $N = 91$	Caphosol, $N = 91$	P-value[b]
WHO mucositis scale (primary end point)			
Mean days of severe (WHO Grade 3 or 4) mucositis (s.d.)	4.5 (4.8)	4.5 (5.0)	0.99
Incidence of severe oral mucositis	62 (68%)	57 (63%)	0.44
Maximum WHO Grade			0.46
Grade 0	2 (2.2%)	7 (7.7%)	
Grade 1	8 (8.8%)	7 (7.7%)	
Grade 2	19 (20.9%)	20 (22.0%)	
Grade 3	42 (46.2%)	35 (38.5%)	
Grade 4	20 (22.0%)	22 (24.2%)	
Evaluable patients with average of ⩾2 daily doses	76 (83.5%)	77 (84.6%)	
Mean days of severe mucositis (s.d.)	4.2 (4.7)	4.3 (5.0)	0.88
Pain Categorical Rating Scale (range 0–10)[c]			**0.78**
Mean AUC (s.d.)	45.5 (36.0)	44.0 (35.6)	
Oral Mucositis Daily Questionnaire[c]			
Mouth and throat pain: mean AUC (s.d.)	22.3 (14.8)	21.4 (15.7)	0.70
Sleeping: mean AUC (s.d.)	9.3 (10.9)	7.3 (9.0)	0.17
Swallowing: mean AUC (s.d.)	21.4 (15.7)	19.9 (15.9)	0.53
Drinking: mean AUC (s.d.)	21.7 (16.3)	20.6 (17.3)	0.66
Eating: mean AUC (s.d.)	27.9 (19.4)	26.6 (20.7)	0.65
Talking: mean AUC (s.d.)	12.2 (11.5)	12.0 (13.2)	0.94



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Treister et al. *British Journal of Cancer 2017; 116*(1): 21-27 23

ACCL1031 Conclusions

- Routine use of Caphosol to prevent severe oral mucositis in children and adolescents undergoing HCT is not supported study findings
- Oral rinses requiring multiple daily administrations
  - May not be tolerated or feasible in HCT setting
  - 28% of participants unable to maintain prescribed schedule
- Anecdotal reports of unpleasant "salty" taste.
- Limitations:
  - Heterogenous patient population
  - Lack of standardized supportive care across participating institutions
  - Lower than planned final sample size (may be underpowered to detect differences in primary endpoint)

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ACCL1032 (CCL Domain – Nausea and Vomiting)

A Randomized Controlled Trial of Acupressure to Control Chemotherapy-Induced Nausea (CIN) in Children Receiving Cisplatin

A Groupwide Phase III Study
Activated: 05/09/2011, Closed: 05/18/2012

Acupressure Bands Do Not Improve Chemotherapy-Induced Nausea Control in Pediatric Patients Receiving Highly Emetogenic Chemotherapy: A Single-Blinded, Randomized Controlled Trial

L. Lee Dupuis, RPh, PhD[1,2]; Kara M. Kelly, MD[3,4]; Jeffrey P. Krischer, PhD[5,6]; Anne-Marie Langevin, MD[7]; Roy N. Tamura, PhD[5]; Ping Xu, PhD[5]; Lu Chen, PhD[8]; E. Anders Kolb, MD[9]; Nicole J. Ullrich, MD, PhD[10,11]; Olle Jane Z. Sahler, MD[12]; Eleanor Hendershot, MN[13,14]; Ann Stratton, RN, MSN, CNP, CPHON[15]; Lillian Sung, MD, PhD[16,17]; and Thomas W. McLean, MD[18]

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Cancer 2018; 124: 1188-1196 25

ACCL1032 Background, Objective, Schema

Background:
CIN is common, distressing SE.
P6 acupoint (ventral surface of the wrist) may have antiemetic action.

Primary Objective:
To compare CIN control in acute phase provided by standard agents combined with acupressure bands vs. sham band in children receiving highly emetogenic chemo.

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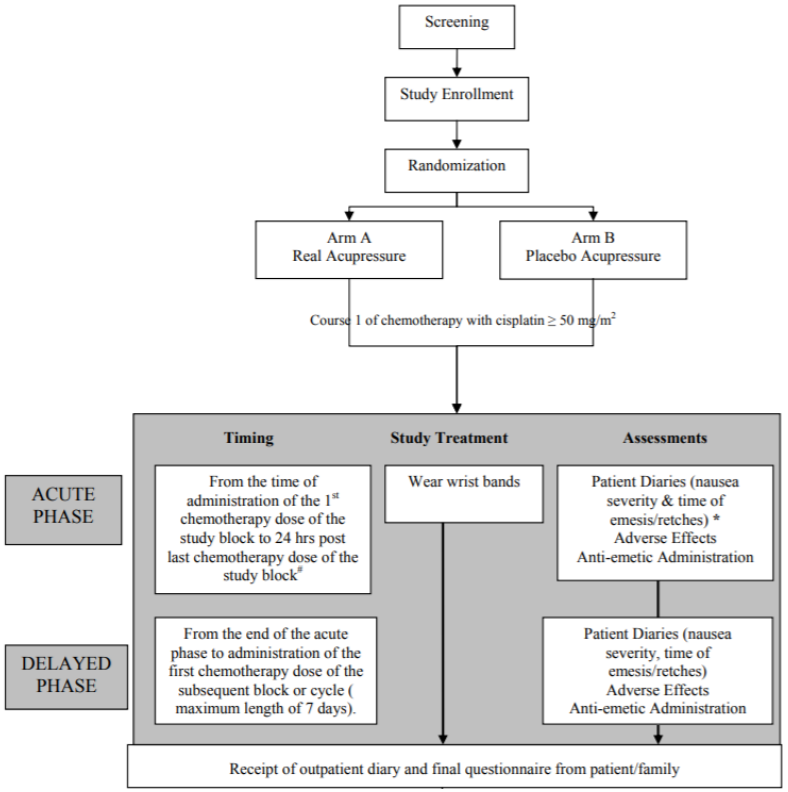

Experimental Schema ACCL1032 Protocol

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ACCL1032 Methods

- **Study Design:** Randomized, single-blinded, sham-controlled, phase 3
  - Randomized 1:1
    - Randomized before the first day of chemo; stratified by chemotherapy and planned antiemetic regimen
    - Sea Bands: knitted, elastic wrist bands with 1cm internal plastic stud to applie pressure to P6 acupoint
    - Sham bands lacked internal plastic stud but were otherwise similar
- **Eligibility:**
  - 4 - 18 yrs, receiving CDDP ≥ 50 mg/m^2, then expanded to include regimens considered to be highly emetogenic (ifos plus etopo or doxo, or CPM plus anthracycline)
  - Exclusion criteria: patients planned to receive non-standard antiemetic agents
- **Primary Outcome:** PeNAT self-assessment of nausea severity
  - Completed at least 4 times per day and any time participants felt nauseated

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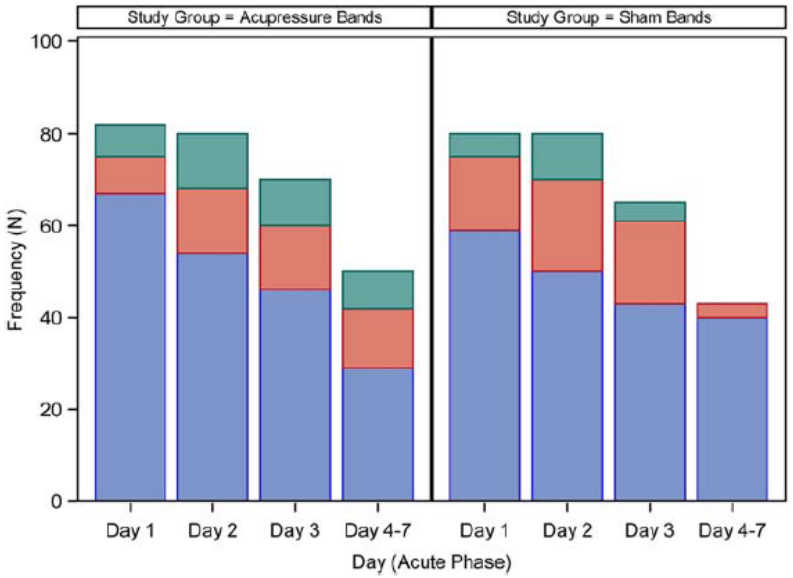
ACCL1032 Results

- 165 patients enrolled and evaluable during the acute phase
- Acute phase CIN severity did not differ between arms



Blue, no emetic episode
Orange, 1 or 2 emetic episodes
Green, >2 emetic episodes

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Dupuis et al. *Cancer 2018; 124*: 1188-1196 [28]

ACCL1032 Conclusions

- Routine use of acupressure bands to prevent CINV for children and adolescents receiving highly emetogenic chemotherapy is not supported study findings
- Limitations:
  - Patient accrual was discontinued before planned sample size of 200 was reached due to change in funding model
  - Results not generalizable to other acupoints (aside from P6) or other modes of acupoint stimulation
  - Antiemetic sham effect possible

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ACCL0431 (CCL Domain – Neurotoxicity / Ototoxicity)

A Randomized Phase III Study of Sodium Thiosulfate for the Prevention of Cisplatin-Induced Ototoxicity in Children
A Groupwide Phase III Study
Activated: 06/23/2008, Closed: 09/28/2012

Effects of sodium thiosulfate versus observation on development of cisplatin-induced hearing loss in children with cancer (ACCL0431): a multicentre, randomised, controlled, open-label, phase 3 trial

David R Freyer, Lu Chen, Mark D Krailo, Kristin Knight, Doojduen Villaluna, Bonnie Bliss, Brad H Pollock, Jagadeesh Ramdas, Beverly Lange, David Van Hoff, Michele L VanSoelen, John Wiernikowski, Edward A Neuwelt, Lillian Sung**

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Lancet Oncology 2017; 18: 63-74

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ACCL0431 Background, Objective, Schema

Background:
CDDP is a standard component of chemo regimens for many pediatric cancers. Clinically significant hearing loss occurs in 40% of children receiving CDDP with a higher % in specific subsets.

Primary Objective:
To compare proportional incidence of post-treatment CDDP-induced hearing loss between participants randomly associated to receive or not receive sodium thiosulfate.

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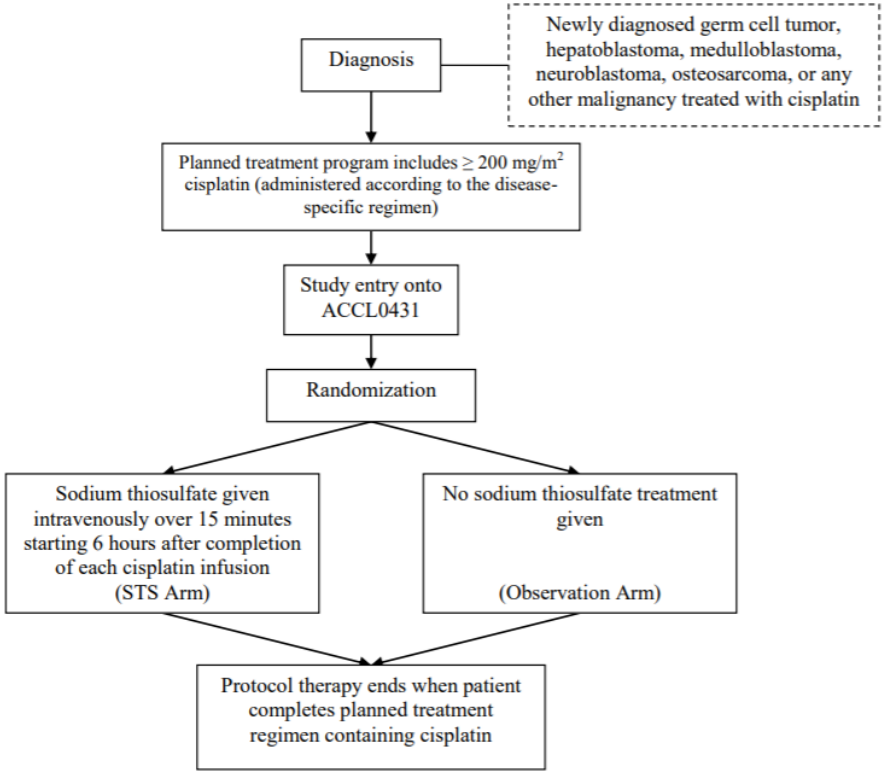

Experimental Schema ACCL0431 Protocol

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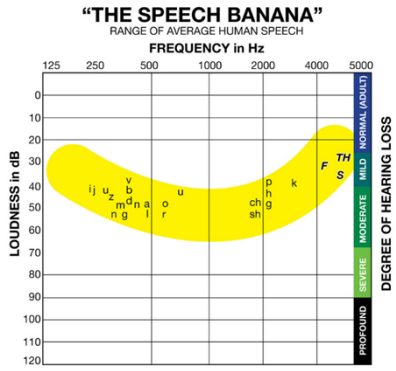
ACCL0431 Methods

- **Study Design:** Randomized, open-label, controlled, phase 3
  - Randomized 1:1
    - Randomized before receiving any CDDP to sodium thiosulfate or control
    - Dose of 16 mg/m^2 or 533 mg/kg, daily over 15 min beginning 6 hr after completion of CDDP dose
    - Sodium thiosulfate: thiol-containing antioxidant, inactivates oxygen free-radicals and electrophilic platinum species
- **Eligibility:**
  - 1 - 18 yrs with planned cumulative CDDP dose of ≥ 200 mg/m^2 and infusion duration of 6 hours or less
  - Diagnoses: hepatoblastoma, GCT, NBL, osteo, other cancers treated with CDDP
  - Normal hearing at enrollment
- **Primary Endpoint:** Hearing loss 4 weeks after final CDDP treatment
- **Secondary Endpoints:** Frequency-specific hearing loss at 4 weeks, hematologic and renal toxicities, EFS and OS



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ACCL0431 Results

104 evaluable for primary endpoint	
Sodium Thiosulfate Group	• 14 (28.6%) had hearing loss • No AEs
Control Group	• 31 (56.4%) had hearing loss • *p* <0.001
Pts with disseminated dx (panel D)	• OS significantly lower in sodium thiosulfate group

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Freyer et al. *Lancet Oncology 2017; 18*: 63-74

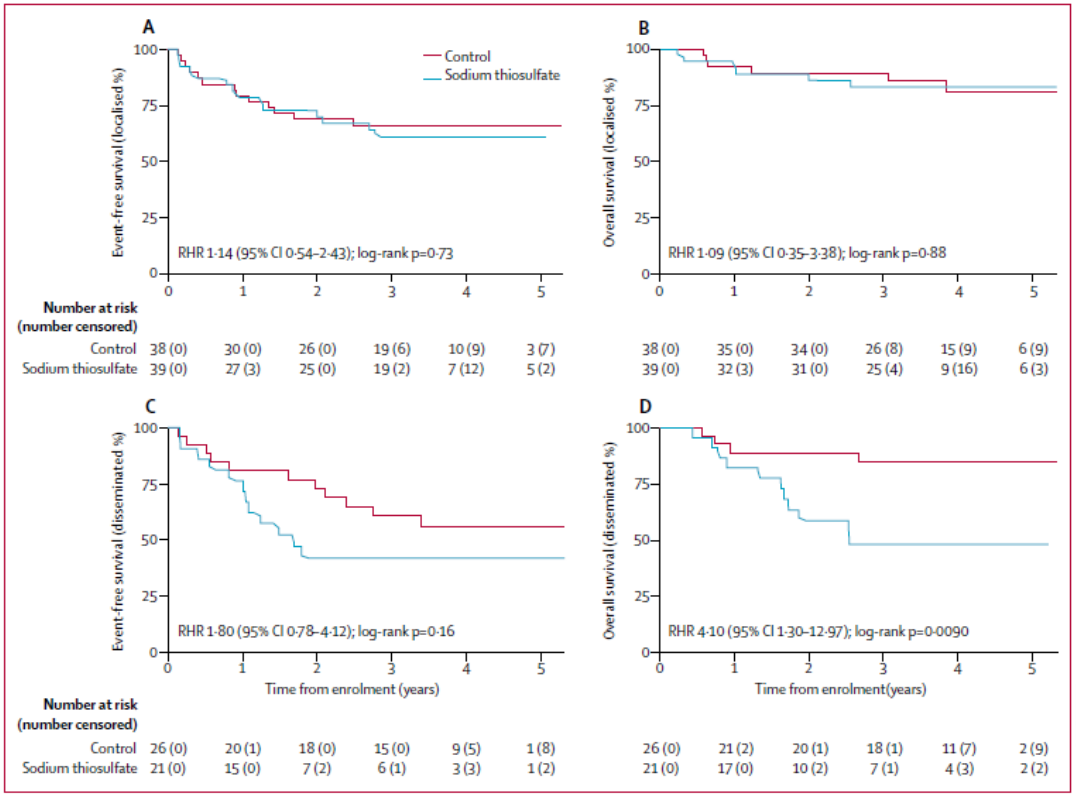

Figure 3*: Event-free and overall survival by extent of disease
(A, B) Participants with localised disease (n=77). (C, D) Participants with disseminated disease (n=47). RHR=relative hazard ratio. *Extent of disease unknown for one participant.

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ACCL0431 Conclusions

- Sodium thiosulfate (after CDDP)
  - Reduced incidence of hearing loss by ~ 50%
  - Lower survival in pts with disseminated dz
- Otoprotection may help to prevent downstream effects of hearing loss
  - Learning
  - Language development
  - Psychosocial functioning
- SIOPEL 6 trial
  - Demonstrated similar otoprotective effects of sodium thiosulfate
  - Did not jeopardize survival in patient with hepatoblastoma (Brock, P. et al, 2018)
- Limitations:
  - Heterogeneity of patient/disease characteristics
  - High proportion of patients not assessable for hearing loss (17%)

Is sodium thiosulfate both tumor protective and otoprotective?

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Completed CCL Studies Submitted for Publication

Protocol Number	Study Title	Year Opened
ACCL0922	A Phase II Placebo-Controlled Trial of Modafinil to Improve Neurocognitive Deficits in Children Treated for a Primary Brain Tumor	2011
ACCL1034	Impact of Cleansing with Chlorhexidine Gluconate on Reducing Central Line Associated Bloodstream Infection and Acquisition of Multi-Drug Resistant Organisms in Children with Cancer or Those Receiving Allogeneic Hematopoietic Cell Transplantation	2013
ACCL1131	A Phase III Open-Label Trial of Caspofungin vs. Azole Prophylaxis for Patients at High-Risk for Invasive Fungal Infections Following Allogeneic Hematopoietic Cell Transplantation	2013

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Study results will help guide clinical practice.

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Open CCL Studies

ACCL10P1	• Computerized Cognitive Training for Pediatric Brain Tumor Patients: A Pilot Study
ACCL1333	• A Phase III Randomized, Open Label Study of Apixaban for Thromboembolism Prevention vs. No Systemic Anticoagulant Prophylaxis during Induction Chemotherapy in Children with Newly Diagnosed ALL or Lymphoma Treated with Pegylated Asparaginase
ACCL1633	• The Effectiveness of Lactobacillus plantarum in Preventing aGvHD in Children undergoing Alternative Hematopoietic Progenitor Cell Transplantation

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Accrual on CCL Trials

- Failure to accrue on COG studies can have negative financial, resource and scientific consequences (VanHoff, D. et al, 2013)
- Clinicians and institutions may prioritize CCL trials lower than therapeutic studies
- Modifiable barriers to CCL trial accrual: (VanHoff, D. et al, 2013)
  - Logistics such as adequate number of eligible patients
  - Institutional interests and priorities
  - Staff presence and dynamics
  - Resources

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Successful CCL Models

- CCL Responsible Investigator
  - CCL champion for each COG institution
  - Nurses can serve in this role
- CCL nursing leaders at COG institutions are key to identifying eligible patients
- APNs are ideally positioned to implement CCL interventional trials
  - Within their scope of practice
  - Focus of symptom management
- Multidisciplinary CCL team meetings at each COG institution with nursing involvement or facilitated by nursing leaders are critical
  - Each member has received adequate CCL study training, functions within a clear role, with transparent expectations and authority
  - Ongoing team communication

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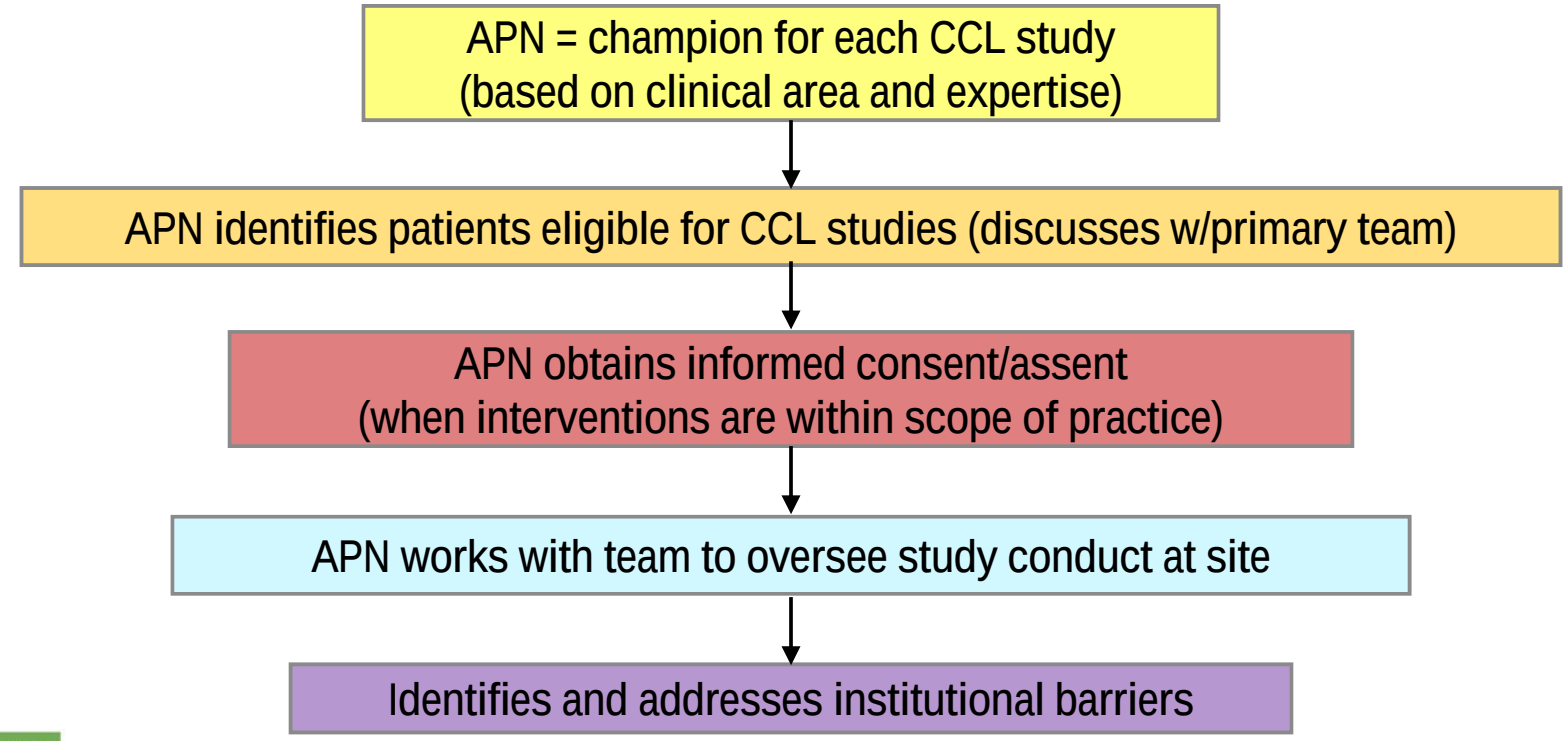
APN-Led CCL Models (Haugen, M. et al, 2016)



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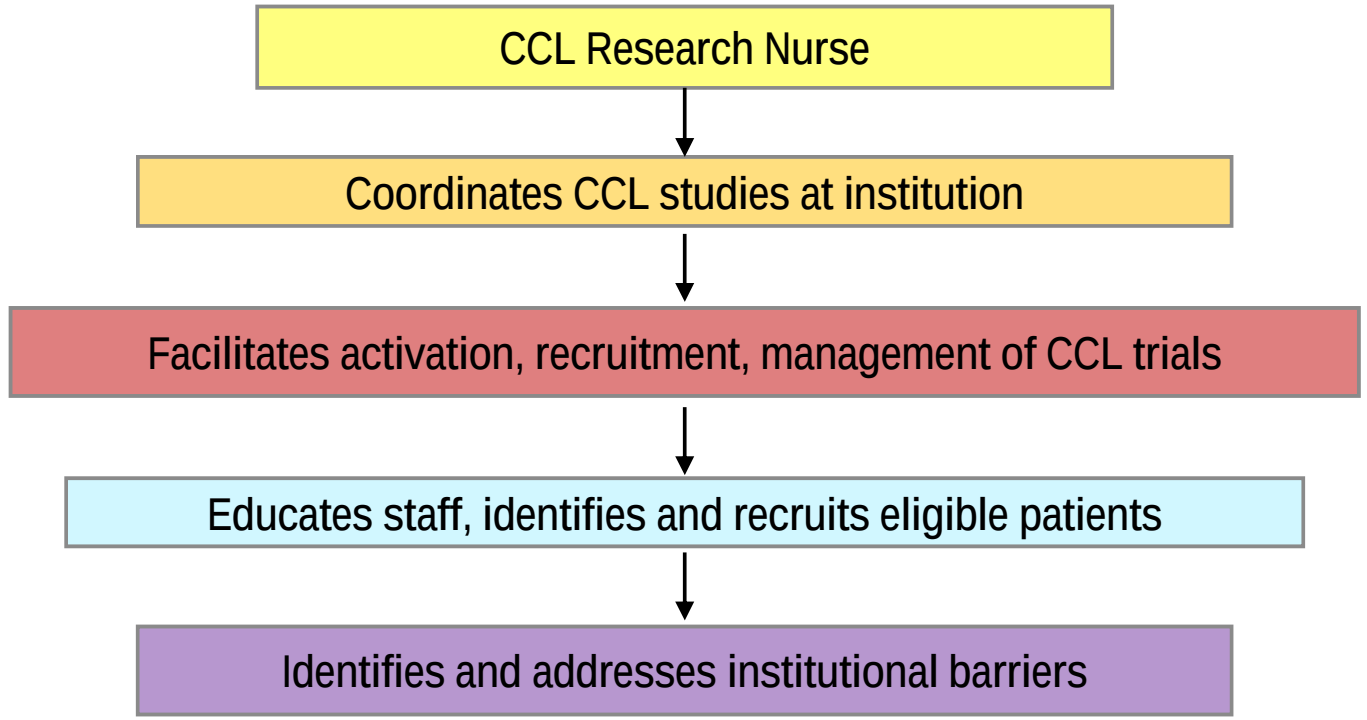
Research Nurse-Led CCL Models (Haugen, M. et al, 2016)



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Take Home Points

- Cancer Control and Supportive Care trials are focused on prevention and treatment of toxicities and late effects of therapy for children with cancer.
- Results of CCL trials can inform clinical practice and improve the QOL for patients.

Nurses can play vital, leadership roles in the implementation and conduct of CCL studies at COG institutions!

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Abbreviations

FULL TERM	ABBREVIATION
Acute leukemia	AL
Acute lymphoblastic leukemia	ALL
Acute myeloid leukemia	AML
Adolescent and young adult(s)	AYA(s)
Advanced practice nurse	APN
Adverse events	AE(s)
Allogenic	Allo
Antibiotics	ABX
Association Pediatric Hematology Oncology Nurses	APHON
Autologous	Auto
Cancer Control	CCL

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Abbreviations

FULL TERM	ABBREVIATION
Centimeter(s)	cm(s)
Chemotherapy	Chemo
Chemotherapy induced nausea	CIN
Chemotherapy induced nausea and vomiting	CINV
Children's Oncology Group	COG
Cisplatin	CDDP
Clostridium difficele	c. diff
Cyclophosphamide	CPM
Doxorubicin	DOXO
Etoposide	ETOP or VP
Event free survival	EFS

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Abbreviations

FULL TERM	ABBREVIATION
Fever and neutropenia	F&N
Four times/day	QID
Gastrointestinal	GI
Germ cell tumor	GCT
Graft versus host disease	GVHD
Hematopoietic cell transplant	HCT
Hours	hrs
Ifosfamide	IFOS
International Childhood Liver Tumors Strategy Group	SIOPEL
Intravenous	IV
Invaseive Fungal Disease	IFD

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Abbreviations

FULL TERM	ABBREVIATION
Kilogram	kg
Levofloxacin	Levo
Meter square	m2
Miligram	mg
Minutes	mins
Months	mos
Mouth Pain Categorical Rating Scale	MPCRS
Neuroblastoma	NBL
Oral mucositis	OM
Oral Mucositis Daily Questionaire	OMDQ
Osteosarcoma	osteo or OST

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Abbreviations

FULL TERM	ABBREVIATION
Overall survival	OS
Patient(s)	pt(s)
Pediatric Nausea Assessment Tool	PeNAT
Quality of Life	QOL
Side effect	SE
Total Body Irradiation	TBI
Total Parenteral Nutrition	TPN
Versus	vs.
World health organization	WHO
Year(s)	yr(s)

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