

# What should we do? The patient's stiff!

## Improving intern comfort with chemical restraints and acute dystonic reaction monitoring

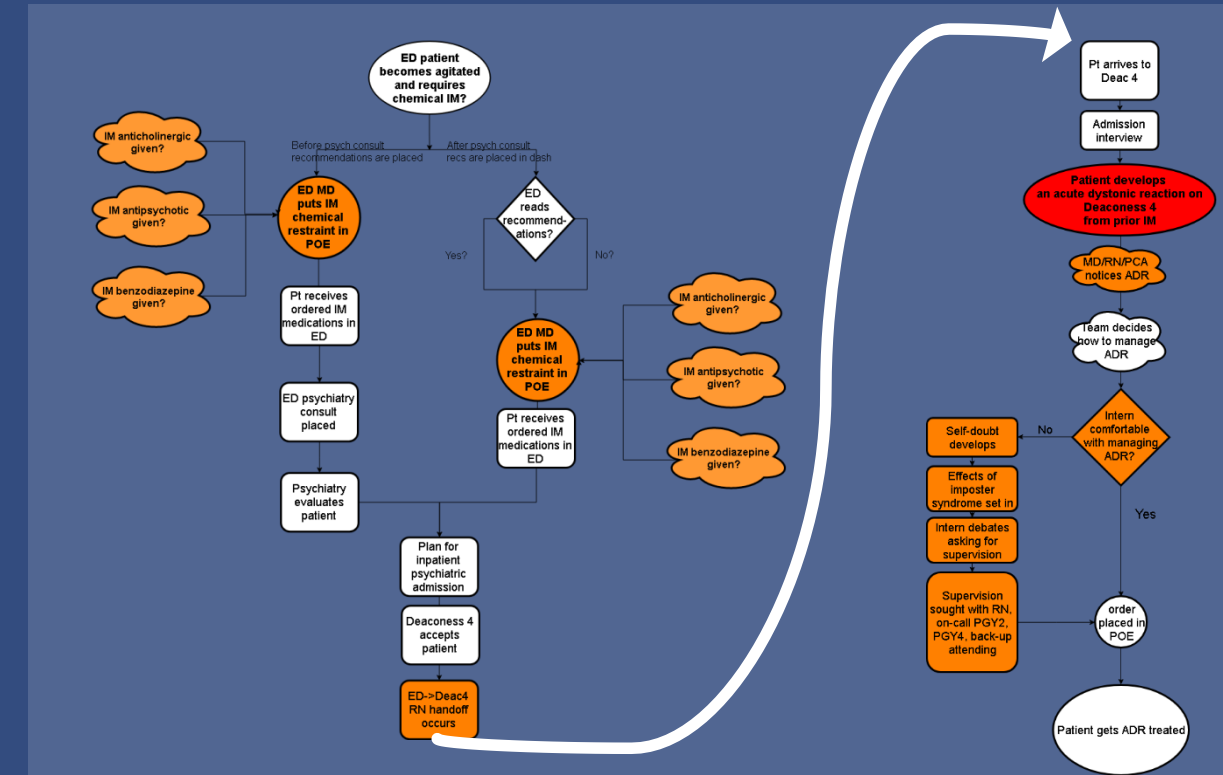
Barbara Burton, MD Jessica Dodge, MD Austin Greenhaw, MD Arthi Kumaravel, MD Andrew Wu, MD

TAP TO GO BACK TO KIOSK MENU

### Introduction/Problem

Acute dystonic reactions are a rare, but known sequelae of antipsychotic administration that can be acutely distressing for patients. These reactions frequently occur in the initial stages of neuroleptic treatment, especially when patients receive intramuscular antipsychotic administration for agitation in the context of psychosis. Based on our personal experience, managing these reactions tend to occur during the PGY-1 nightfloat rotation, when interns have not had much educational nor clinical experience regarding the acute management of ADR. Furthermore, interns do not receive standardized guidance regarding optimal chemical restraint administration.

### Process Map



Initial hypothesis: Patients on the inpatient psychiatric unit are getting acute dystonic reactions due to not receiving appropriate anticholinergic prophylaxis in the ED

*Upon initial process map development, we realized the issue at hand was far more complicated than we expected which led to an evolution of the project...*

### Aim/Goal

Improve comfort of chemical restraint ordering and acute dystonic reaction monitoring up by 20% among interns before and after an educational intervention in a 3 month period

### Evolution of the Project

Initial plan	What happened	Adjustments taken
Screening survey to assess intern comfort	10/10 interns responded	Optimize educational intervention
Contact ED stakeholders to assess how they utilize dash recs/order chemical restraints	No response despite multiple attempts to ED RN/MD leadership	Pivoted investigation aims towards Deaconess4 interventions
Investigate ADR incidence to establish standardized chemical restraint protocol	Literature is limited, difficult to make firm recommendations on optimal chemical restraint practice	Inform interns of most frequently reported ADR risk-factors based on most reported/reputable studies
Contact Deac4 leadership re: handoff practices for chemical restraints	There is no standardized handoff procedure for communicating chemical restraint administration in ED.  PGY2 is hard. Further meetings were not able to be held due to scheduling conflicts due to call and rotation responsibilities	Shelved standardizing handoffs to future project aims  Pivoted investigation aims towards improving intern comfort

### The Team

- PGY2 Leaders: Barbara Burton, Jessica Dodge, Austin Greenhaw, Arthi Kumaravel, Andrew Wu
- QI project advisors: Rohn Friedman, MD Elizabeth LaSalvia, MD, Psychiatry
- Stephenie Loux, Quality Improvement Data Analyst, Psychiatry
- Deac4 nursing leadership: Kari Phillips , RN, BSN
- OMR consultant: Larry Nathanson, MD

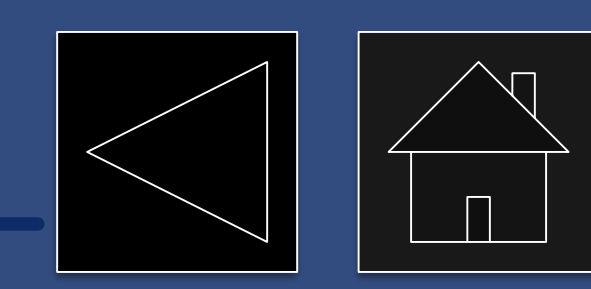
### The Interventions

- Educational intervention to aid in diagnosis of acute dystonic reactions, risk-factors for ADR, and guidance on ordering appropriate chemical restraints to minimize ADR

*We explored multidisciplinary and multidepartmental approaches towards the problem at hand: PGY-1 psychiatry interns, ED physicians, Inpatient psychiatric nursing, as well as a detailed look at the literature on acute dystonic reactions and chemical restraint efficacy*

**For more information, contact:**  
**Andrew Wu, MD @ awu3@bidmc.harvard.edu**





# What should we do? The patient's stiff!

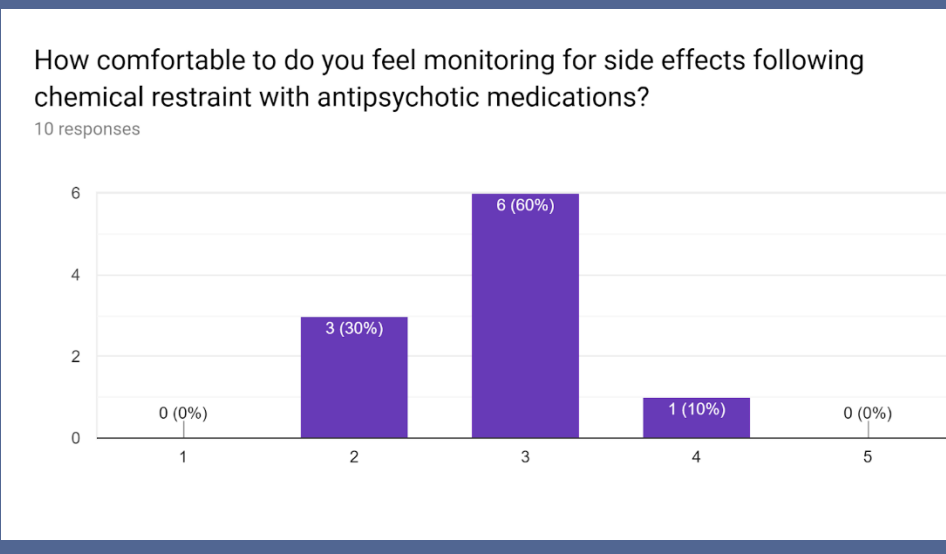
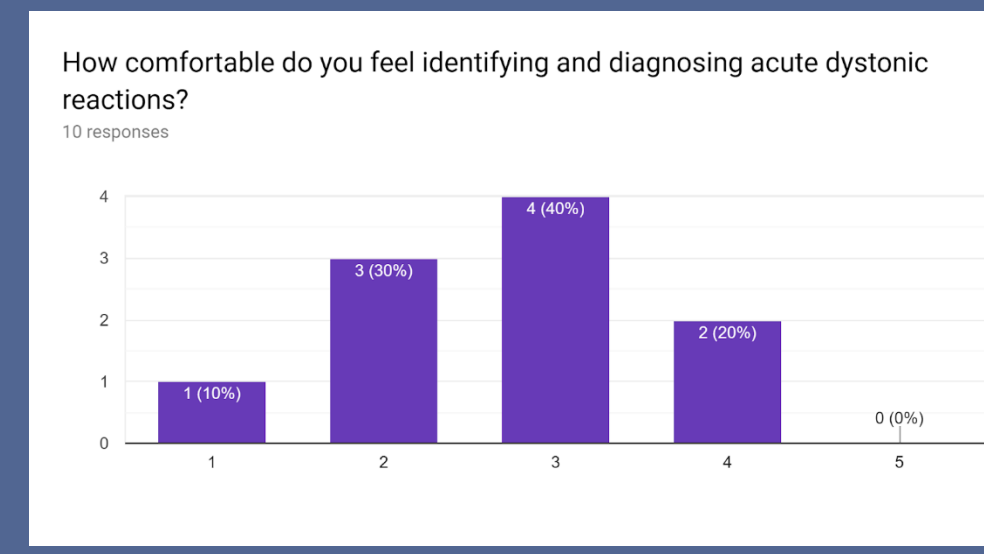
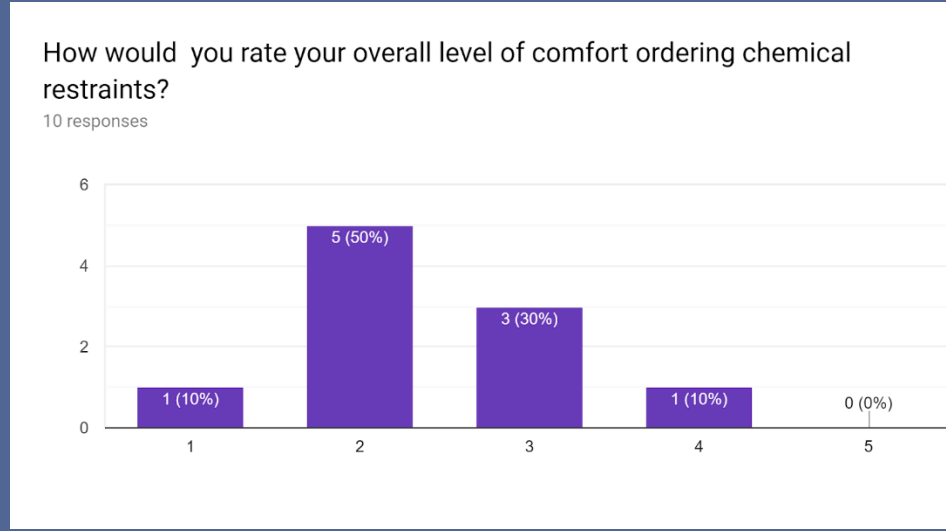
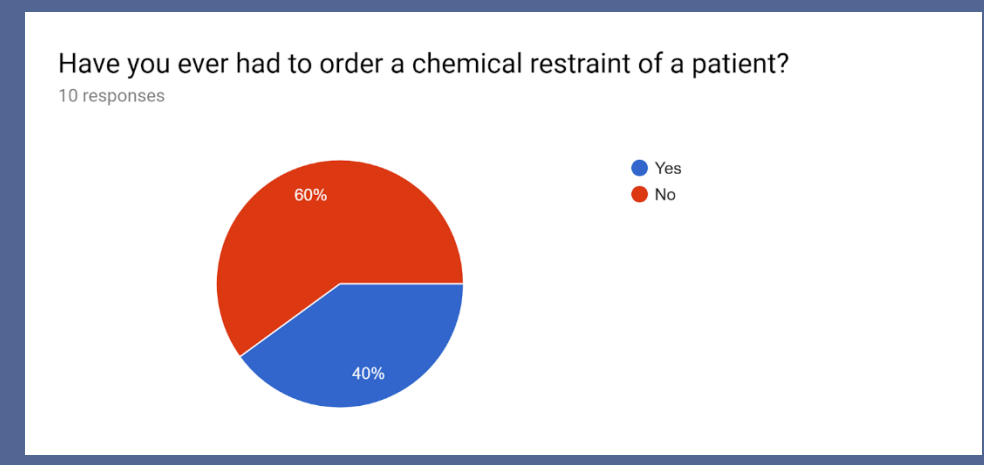
## Improving intern comfort with chemical restraints and acute dystonic reaction monitoring

Barbara Burton, MD Jessica Dodge, MD Austin Greenhaw, MD Arthi Kumaravel, MD Andrew Wu, MD

### Methods/Pre-intervention Data

Prioritized List of Changes (Priority/Pay-Off Matrix)

Low Impact	<ul style="list-style-type: none"> <li>Investigate how ED utilizes dash recommendations for chemical restraints</li> <li>Track chemical restraint orders in OMR</li> <li>Investigate ED-&gt;Deac4 handoff procedures with regards to IM medications received in the ED</li> </ul>
High Impact	<ul style="list-style-type: none"> <li>Create standardized checklist for chemical restraint ordering</li> <li>Educational intervention for ED MDs</li> </ul>
	<p>Easy <span style="float:right">Difficult</span></p> <p>Ease of Implementation</p>

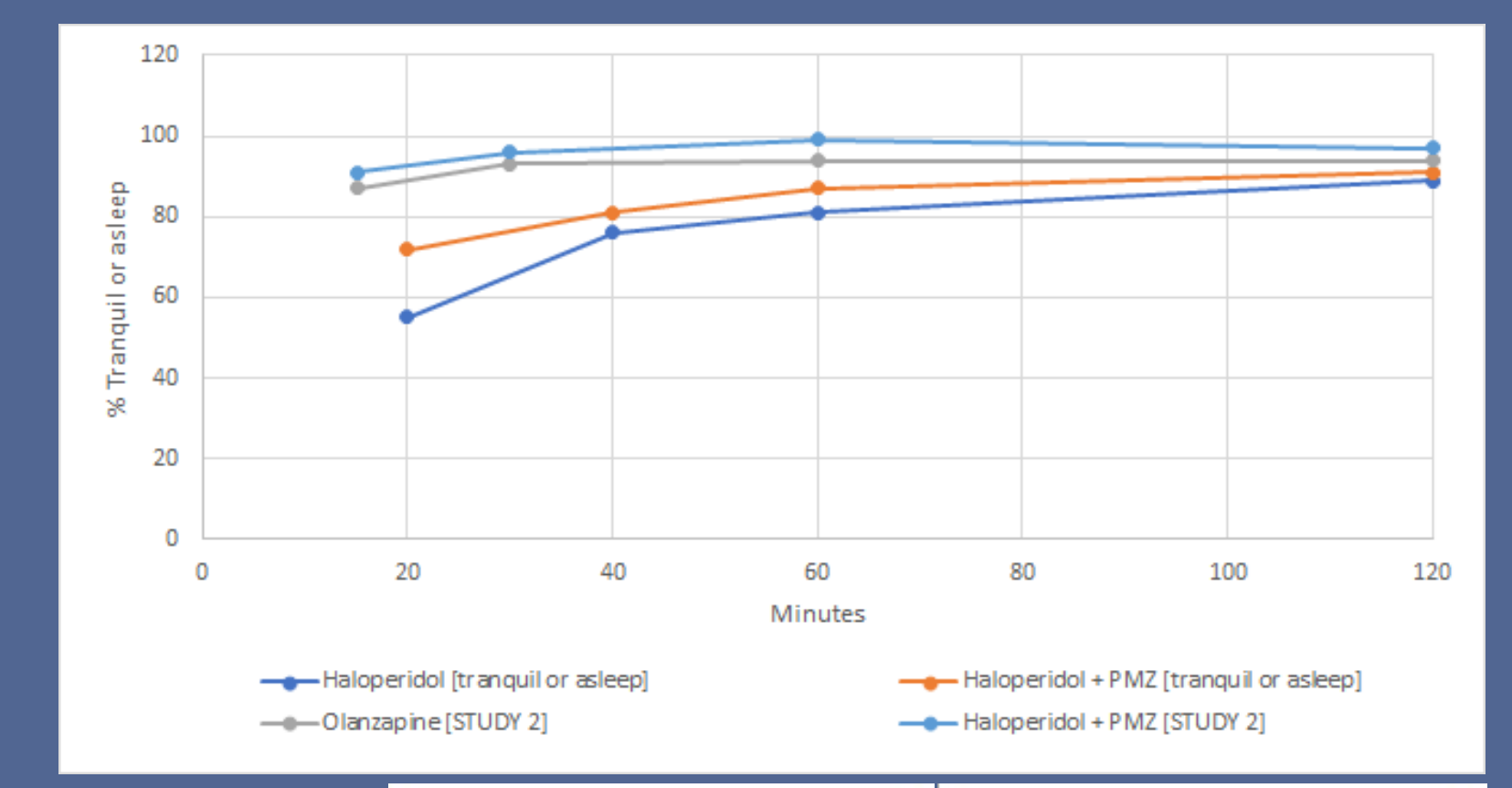


Ultimately, we focused on delivering an educational intervention to the interns due to multiple barriers encountered during the development of our project. Comfort measures were obtained with an electronic survey using a 1-5 Likert scale and a t-test was used to calculate differences in average comfort level.

### Results of Literature Search: Chemical Restraint Efficacy and ADR rates

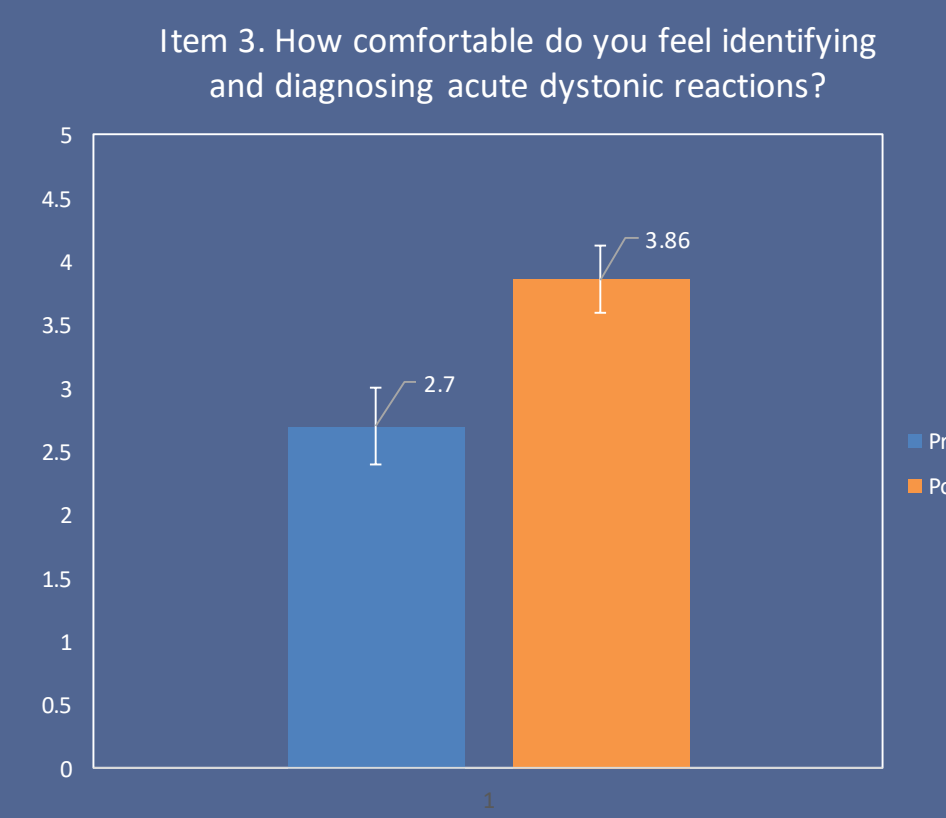
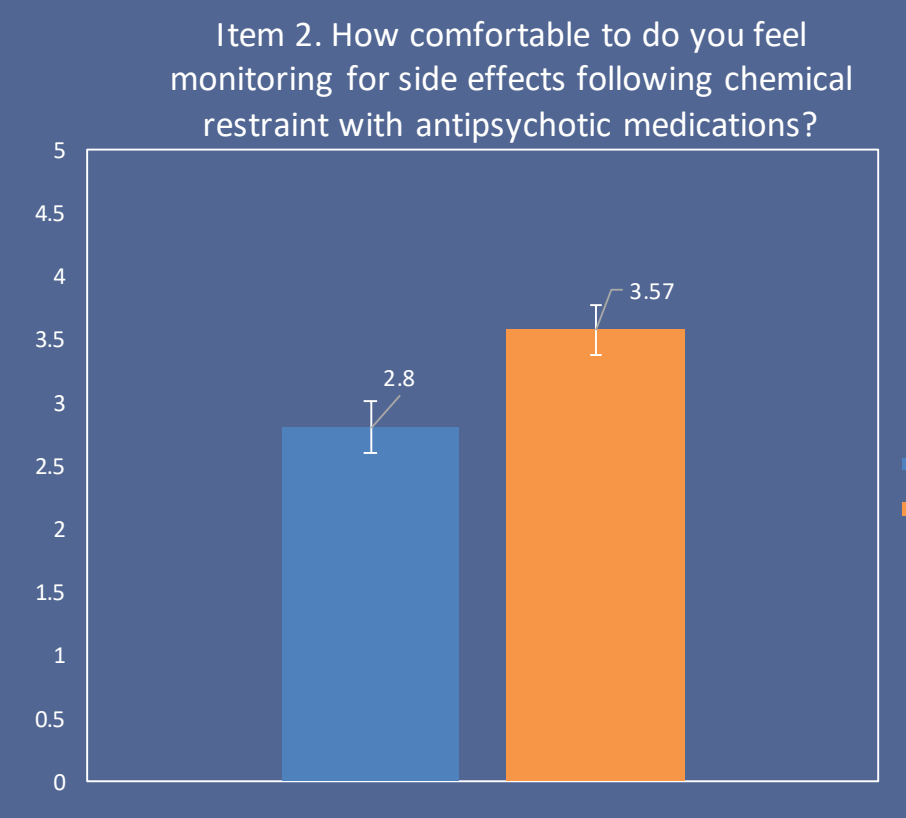
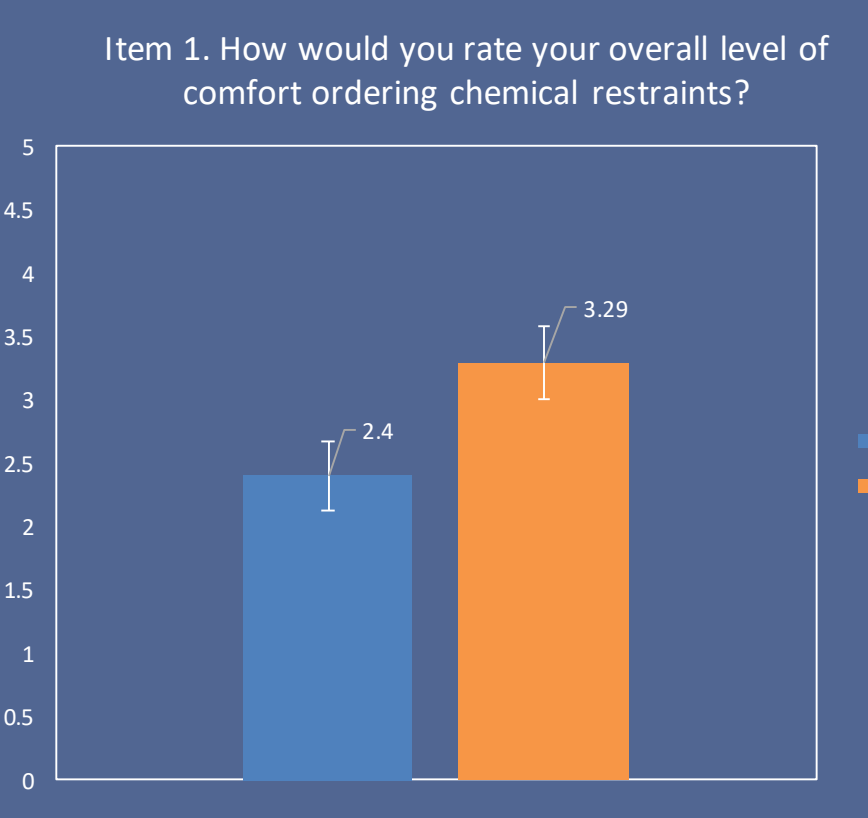
	Haloperidol	Haloperidol + PMZ
Dystonic reaction	9	0
No dystonic reaction	147	160

	Olanzapine	Haloperidol + PMZ
Dystonic reaction	0	0
No dystonic reaction	150	150



The existing evidence base for chemical restraints is limited, though suggests that ADRs can be safely avoided in chemical restraints by either co-administering with adjunctive anticholinergic medications or with olanzapine.

### Post-educational intervention data



Our post-intervention data showed statistically significant improvement in all three measures of comfort.

### Lessons Learned

- Intern comfort with managing acute dystonic reactions, ordering chemical restraints, and understanding the side effects of differing chemical restraint formulations was significantly improved following an educational intervention
- The literature on chemical restraint efficacy and subsequent acute dystonic reactions is comprised of few good quality studies, small sample sizes, and reporting bias, which caused significant barriers in the development of this quality improvement project
- Monitoring and improving chemical restraint practices at BIDMC will require multidepartmental and multidisciplinary collaboration in the future

### Next Steps

- ADR risk-factor checklist to ED physicians
- Create a standardized handoff procedure to communicate ED chemical restraint administration to the nightfloat MD
- Future discussions with OMR leadership to determine how best to monitor chemical restraint practices
- Future meetings with ED leadership to determine their decision-making with chemical restraint ordering

For more information, contact:  
Andrew Wu, MD @ awu3@bidmc.harvard.edu