Rational Use of Psychotropic Medications

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Prescribing Rates in Australia

- Between 2000-2011 (note, all age groups):
  - Antidepressant Rx's increased 95.3%
  - Antipsychotic Rx's increased 85.2%
  - ADHD Rx's increased 72.9%
  - All Psych Rx's increased 58.2%

Stephenson, et. al. , 2013

- Australia had the second highest rate of antidepressant use of the 34 Organisation for Economic Cooperation and Development nations

OECD, 2013

Pediatric Prescribing Rates in Australia

- Between 2009-2012:
  - Antidepressants increased 16.1%
  - Antipsychotics increased 22.%
  - ADHD Meds increased 26.1%
- Most rapid increases were:
  - Antidepressants for 10-14 yo: 35.5%
  - Antipsychotics for 10-14 yo: 49.1%
  - ADHD meds for 20-24 yo: 70.9%
- M > F across all age groups and med classes
- Most antidepressants and antipsychotics were prescribed by GPs (89.9% and 70.6% respectively)
- Majority of ADHD Meds were prescribed by pediatricians (59.1%)

Emily A Karanges, Chris P Stephenson, and Iain S McGregor. "Longitudinal trends in the dispensing of psychotropic medications in Australia from 2009–2012: Focus on children, adolescents and prescriber specialty." *Aust N Z J Psychiatry*

Prescribing Rates in US Residential Settings

- 52% to 64% of youth entering residential treatment settings are on one or more psychotropic medication

  Lekhwani et al., 2004; Warner et al., 2007

- Up to 55% of these youth have three or more psychotropic medications

  Connor & McLaughlin, 2005; Griffith et al., 2010

- Many of these psychotropic medications are not indicated for the particular diagnoses the youth have

  Brown, 2005; Leo, 2006; Pogge et al., 2007

Psychotropic Medication Prescribing Trends (US)

- High percentage of polypharmacy among youth referred for residential treatment.

  Connor et al. 1998; Hussey and Guo 2005

- More inpatient stays prior to referral positively related to number of psychotropic medications at intake.

  Zakriski et al. 2005

- Being on psychotropic medications increases length of stay.

  Hussey and Guo 2005; Lekhwani et al. 2004

Prescribing Rates for Youth in CW

- The few research studies available show rates of psychotropic medication use ranging from 13%-52% among children in foster care J Child Adolesc Psychopharmacol. 1999:9:3: 135-47 and 2006:16:4: 474-481; Peds 2008:121:1; e157-e163
- Rates of antipsychotic use increased from 8.9% in 2002 to 11.8% in 2007 (range from 2.8% in HI to 21.7% in TX). Rubin, et. al. *Children and Youth Services Review*, 34(6), 2012

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Antipsychotic medications (US)

- Use of antipsychotic medications is amongst the fastest growing class of psychiatric medications.
- Use in Medicaid-enrolled Children age 3-18 grew 62% between 2002 and 2007.
- Evidence to support this increase for most conditions remains limited.
- ADHD is the most common diagnosis (39%, Bipolar 11%, ADHD and Bipolar 12%).

Matone, Rubin, & Policy Lab at CHOP, 2012

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The Challenge

- Evidence for the effectiveness of pediatric pharmacotherapy remains rather limited.

  Correll et al, 2011; Mehler-Wex et al., 2009; Mintz & Flynn, 2012

- This is especially true for youth with:
  - Complex treatment needs
  - Histories of multiple treatment failure
- These youth present with intense or chronic mental health and behavioral problems. Pottick, Warner, & Yoder, 2005
- Brain continues to develop through adolescence.
- Impact of adding psychoactive medications to a developing brain is unknown. Correll et al., 2006

Current Evidence Base

- While gains have been made in the last decade establishing the evidence base for some psychotropic medications for certain psychiatric conditions, important gaps in the evidence base remain (Jensen *et al*., 1999; McClellan & Werry, 2003; Vitiello, 2007).
- There is scant evidence in adults or children for specific combinations of psychotropic medications used together or for the use of multiple medications ("polypharmacy") (Chen *et al*., 2011, Jureidini, Tonkin, & Jureidini, 2013).

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Science/Practice Gaps

- Current levels of psychotropic prescribing are not supported by research.

  Brüggemann et al., 2008; Mojtabai & Olfson, 2010

  - This is especially true for polypharmacy where 3 or more psychotropic medications are used concurrently.
- There is a disconnect between research and day-to-day practice needs. Gruttadaro & Miller, 2004
  - The algorithms and guidelines typically only apply to using a single psychotropic for a single diagnosis (no comorbidity).
- The high levels of emotional and behavioral impairment that qualify youth for residential care occur in spite of the high psychotropic medication rates seen at admission. Bellonci et al., 2013

Level of Research Support for Psychotropic Use With Children

PROBLEM AREA	MEDICATION	SHORT-TERM EFFICACY	LONG-TERM EFFICACY	SHORT-TERM EFFECTS	LONG-TERM EFFECTS
Anxiety Disorders (including OCD*)	SSRIs (*FDA indications for OCD only)	A	B	A	B
	Benzodiazepines	C	C	C	C
ADHD	Stimulants*	A	A	A	A
	Atomoxetine*	A	B	A	A
	TCAs	A	C	A	B
	Alpha-2 Adrenergic Agonists*	A	B	A	B
Aggression in Autism	Atypical antipsychotics* (risperidone, aripiprazole)	A	B	A	B
Aggressive Conduct	Lithium	B	C	B	C
	Valproate	B	C	A	A
	Carbamazepine	C	C	C	C
	Atypical antipsychotics	A	B	A	B
Bipolar Disorder	Lithium	B	C	B	C
	Valproate	C	C	A	A
	Carbamazepine	C	C	B	C
	Atypical antipsychotics*	A	C	A	B
Depression	SSRIs* (fluoxetine, escitalopram)	A	A	A	B
	TCAs	C	C	B	B
	Buproprion	B	C	B	C
	Venlafaxine	C	C	C	C
Schizophrenia (psychosis)	Antipsychotics*	A	C	A	C
Tourette's Disorder	Antipsychotics* (haloperidol, pimozide)	A	C	C	C
	Alpha-2 Adrenergic Agonists	B	C	B	C

SSRI – Selective Serotonin Reuptake Inhibitor; TCA = Tricyclic Antidepressant

Updated November 1, 2010

- This tool was developed by Peter Jensen
- FDA approved medications for a given indication are marked with an asterisk*
- A = Adequate Support; B = Mixed Results; C = No controlled or negative evidence

Medication Duration

- Rational use of medication also must attend to duration of psychotropic treatment.
- Longer-term treatment regimens are utilized based on research of short-term outcomes, despite emerging evidence of potential risks of such sustained usage on the developing brain and body, e.g. increased risk of obesity and cardiovascular and endocrine abnormalities in chronic antipsychotic usage (Anda et al., 2006)

Lack of Safety and Efficacy Studies: "Off-label" prescribing

- FDA guidelines do not limit prescribing practice.
- Medications are developed privately by Pharmaceutical companies.
- FDA requires safety and efficacy studies for *target population* and *target purpose* only.

Psychotropic Medications in RTCs

- For youth served in residential programs, the evidence base is further complicated due to the complexity of their circumstances (Handwerk *et al.*, 2008).
- Presenting issues typically include a large number of prior traumatic or stressful events, multiple situational factors contributing to emotional distress, and a range of disruptive behaviors.
- Youth frequently meet criteria for more than one diagnosis without a good fit to the "classic" symptoms of any one disorder.

Psychotropic Medications in RTCs (cont'd)

- Prior history often includes chaotic and unstable circumstances, an increasing cascade of interventions with several care providers, and poor transfer of diagnostic and treatment information.
- It is not atypical for children to be taking multiple psychotropic medications at the time of admission, before even seeing a residential program psychiatrist.
- The residential psychiatrist is often placed in the position of addressing aspects of a complex problem, with many preexisting and concurrent dynamics, and of necessity taking a trial-and-error approach.

Psychotropic Medications in RTCs (cont'd)

- It is a challenge for residential, clinical, and medical staff to reconcile their desire for the best care and the least likelihood of harm, with the complexity of the clinical picture and the lack of a strong evidence base for psychotropic medications for children particularly in the face of pressure from parents and guardians to use medication for immediate stabilization.

Role of Psych Meds during a RTC Stay

- A residential intervention affords an opportunity to create a "holding" environment in which a psychiatrist can partner with families, youth, and staff to establish a more coherent understanding of the child's needs and the indications for medication.
- What is most important is that this occur through a "rational approach" that recognizes the value and, in some cases, necessity or even urgency of medication, but does not view its use in isolation or as appropriate treatment in and of itself.

Role of Psych Meds during a RTC Stay

- This approach involves a mindset of not expecting psychotropic medications to "cure" the complex conditions of children seen in residential settings, and a realistic understanding of the extent to which psychotropic medications can be expected to reliably influence youth outcomes.
- While there are differing roles that psychiatrists can take on residential teams, the active involvement of and partnership with youth and families within a child and family team structure is key to effective implementation of these practices.

Assessment, Diagnosis, and Treatment Planning

- Youth's presentation at admission may vary from that which is reported in the record.
- It is important for the assessment process to incorporate a thorough understanding of the child's historical patterns and changing presentation over time.
- It should include sensitivity to cultural, socioeconomic, and other psychosocial variables and reflect awareness that underprivileged children may be likely to have received more severe diagnoses and to have been more heavily medicated compared to children from more privileged backgrounds with the same symptoms.

Assessment and Screening for Trauma

- It is *essential* that Assessment include a review of Adverse Childhood Experiences and trauma exposure. Intervention strategies may vary considerably when trauma is a factor in the clinical presentation.
- Symptom manifestations of adverse childhood experiences often resemble disorders characterized by behavioral and/or emotional dysregulation.
- Some diagnoses or symptom patterns may even be "functional" responses to environmental contingencies.

Psychotropic Medication Philosophy

- Psychotropic medication should be prescribed cautiously and as part of an evidence-based treatment plan.
- Physicians need to
  - Identify reasons for emotional and behavioral impairment.
  - Assess impact of medication on emotion and behavior.
  - Evaluate the benefits and risks of current psychotropic regimen.
  - Make ongoing decisions about the need for and effectiveness of psychotropic use.
- Youth should be on the medications they require to meet their treatment needs and no more (the principle of sufficiency).

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Treatment Approach

- Due to the complex history of youth in residential programs, providers may wish to consider a careful tapering of psychotropic medications early in the assessment process to allow for accurate differential diagnosis as well as for identifying multi-disciplinary approaches to help the youth develop self-soothing and coping skills.
- Establishing this baseline may allow a clearer perspective regarding the youth's changes since the onset of treatment. Things to consider include development, coping abilities, interpersonal changes, intellectual/educational capacity, etc.

At Admission

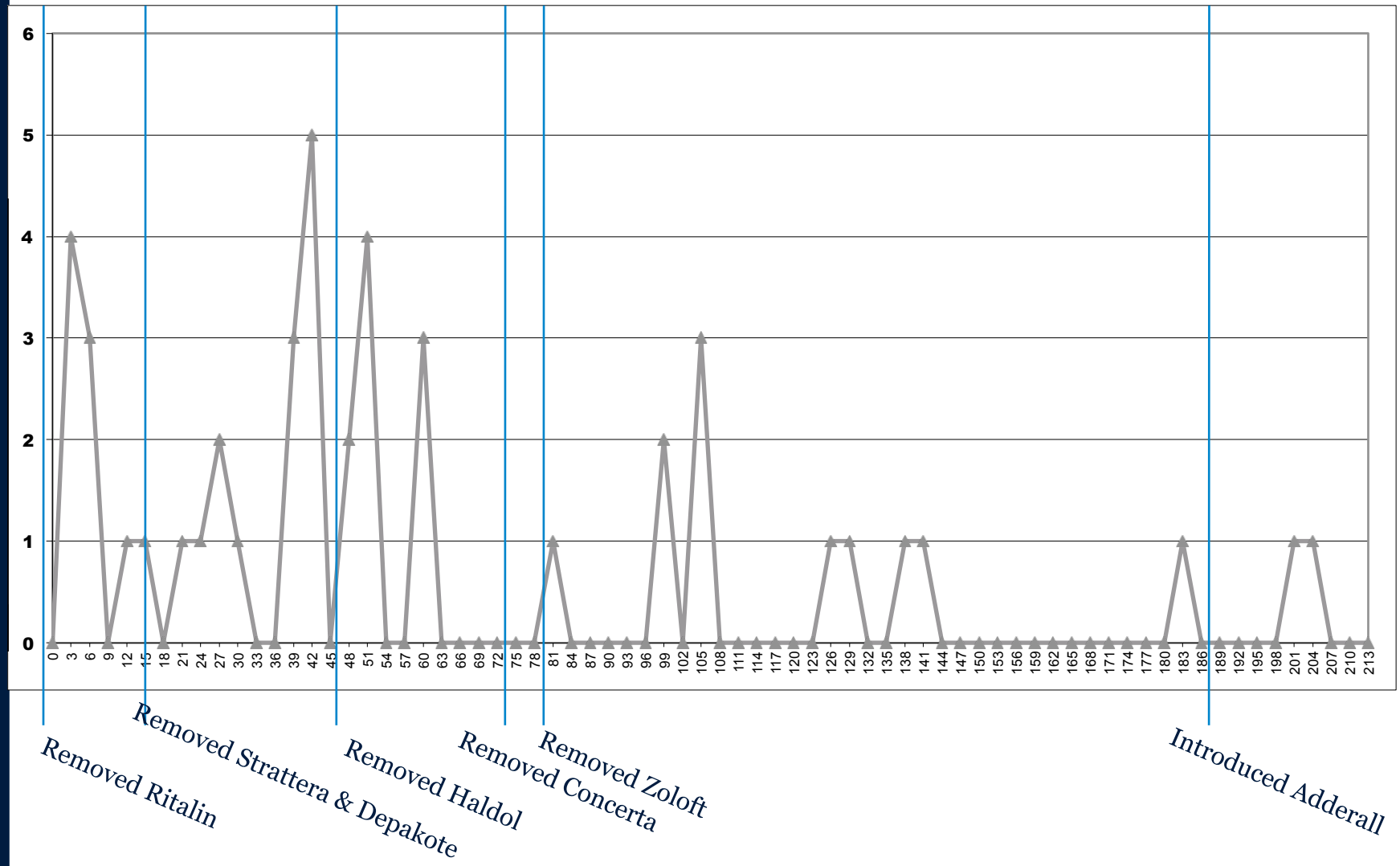
- Request is made for all past treatment records.
- Multi-disciplinary team convenes an initial treatment planning meeting.
- Initial formulation accounts for biological, psychological, social, and educational contributors to youth's behavior.
- The medication plan, often involving a taper of medications at admission, is an integral part of the treatment plan.
- Specific measures are identified that will inform whether the formulation is accurate and the treatment plan is resulting in the desired outcomes (Plan>Do>Study>Act).

During the Residential Stay

- Medication choice should be informed by a thorough assessment, with consideration of the existing evidence for psychotropic use, and the knowledge that long term impacts haven't been identified.
- On-going reevaluation of the clinical formulation while monitoring response to treatment will lead to a refinement of the diagnostic picture over time, yielding a more complete understanding of the child than a static depiction formed at admission.
- This is **not** "diagnosis by response." Youth may respond to treatment differently over time. Communication across team members is critical for accurate conceptualizations of care.

Case Study: Aggressive Behavior

Spellman et al., 2010



Team Approach

- Everyone needs a voice at the table in the assessment and treatment planning process. This should be family-driven, youth-guided, person-centered including all those involved in the delivery of care.
- Psychotropic use should be regarded as one option within a constellation of clinical strategies that can improve the youth's functioning and outcome.
- It is important to avoid a pharmacological vs. non-pharmacological dichotomy, which may unintentionally ascribe greater importance to psychotropic medications over other therapies or vice versa.

Youth and Family Voice

- Youth and families should be fully involved in making and supporting both pharmacological and non-pharmacological treatment decisions.
- Youth responses to medication will be variable (Foltz & Huefner, 2013), including over and/or under reporting of benefits and side-effects, medication refusal, fear of sacrificing locus of control, seeing medication as a way to fix the problem, and reduced investment in learning new ways of managing frustration, disappointment, and anger.
  - Outcomes may be influenced by these subjective reactions and beliefs about treatment

Youth and Family Voice (cont'd)

- It is critical that youth and families are provided psychoeducation regarding medication, that their attitudes towards and beliefs about medications are respected, and that open dialog is encouraged.
- Family members may have a similar range of hopes and fears about medication. By incorporating youth and family perspectives and achieving agreement between the youth, family, prescribing clinician, and team, treatment engagement and resulting outcomes will be optimized.

Youth and Family Voice (cont'd)

- When a youth and/or family feels uncomfortable or opposes use of psychotropics, they should not be forced. Subtle or overt pressure is contrary to trauma-informed care.
- Adequate support and monitoring should be provided for youth and families interested in reducing dosage levels or numbers of medication.
- Youth or families self-advocacy for goals such as reducing or tapering of medication usage should be taken seriously, with dialogue between the clinician and youth/family to explore how they can be pursued collaboratively.

Community and Social Supports

Developmental Competencies

Goals

Functional Life Domains

Self- and somatic regulation
Social skills
Executive functions
Emotional regulation
Self-monitoring
Communication skills
School and work readiness
Other

Happiness
In family/at home
Self-empowerment
Success in school / work
Have fun
Feel and be safe
Out of trouble
Sober/Drug Free
Have meaning/purpose
Interpersonal
Physical health

Treatment

Treatment of the child and family aids in the acquisition of some developmental competencies such as emotional regulation.

Services ultimately must support skill development

Training, education, capacity and skill building

Capacity and skill building needed to develop many of the developmental competencies

Medication Management, Monitoring, and Quality Improvement

- Integrating tools and processes to improve the quality of medication practices with the other aspects of quality improvement will yield data that can be used to assess progress and yield practice improvements.
- Residential leaders may wish to consider incorporating this data into dashboards, reports to the community, information provided to parents and youth about the program or other high-visibility venues.
- This will have the important impact of setting a tone within the program and beyond that quality concerns related to medication practice are at least as important as any other aspect of quality improvement.

Training

- Training regarding psychotropic medication for employees at all levels, youth, families, advocates, funders, and external stakeholders will develop understanding of both reasonable expectations and limitations to psychotropic medication use, as well as the range of potential adverse effects, and will elevate the perceived and actual importance of monitoring and communication regarding medication response, drug interactions, etc.

Secret strengths of RTCs

- Multi-disciplinary assessment.
- Intensive training and support for staff.
- Laboratory for assessing treatment models and creating evidence-based practices.
- Data-driven clinical practice.
- The only setting left for thoughtful second opinions about complex diagnostic and medication questions and concerns?

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Multi-Disciplinary Assessment

- Professionals from many disciplines on site (OT, S/L, learning specialists, behavioral specialists, psychologists, psychiatrists).
- Multiple perspectives across the entire duration of treatment.
- Feedback between direct care staff and clinicians on effect of interventions based on data and not anecdotes or impressions.
- Combination of standardized assessments, clinical interviews, and observation of behavior.

Approach to Psychotropic Decision Making

- The residential stay is an opportunity to reassess the effectiveness of each psychotropic medication.
- Known risk factors for medications are weighed against the observed benefits.
- The process of behavioral data monitoring and decision making is continuous.
- The objective is to support:
  - Resiliency of youth, i.e. Teach skills.
  - Development of competency in managing affect and tolerating frustration.
  - Practice developing social and behavioral skills.
  - Minimize exposure to undesirable and dangerous side effects.

Reducing Psychotropic Medication in Two Residential Programs

- Objective: Examined psychotropic medication utilization over the course of treatment.
- Setting: A locked IRTC with 24 hour awake supervision, shift-staff, Medicaid funded.
- Method: Examined 531 youth admitted on or after January 2006 and discharged on or before September 2010.
  - 85 - 90% had a history of assaultive behavior.

Bellonci et al., 2013

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Demographic Information

Program		Walker	Boys Town		Overall Sample
Age group		Younger	Younger	Older	
N		100	125	306	351
Length of stay (days)		*M* = 544.9 *SD* = 321.2	*M* = 193.0 *SD* = 110.2	*M* = 110.7 *SD* = 70.9	*M* = 211.8 *SD* = 22.7
Age at admission		*M* = 9.4 *SD* = 1.9	M = 10.9 SD = 1.5	M = 15.4 SD = 1.3	M = 13.2 SD = 3.0
Sex	Male	71 (71.0%)	77 (61.6%)	151 (49.3%)	299 (56.3%)
	Female	29 (29.0%)	48 (38.4%)	155 (50.7%)	232 (43.7%)
Race	White	64 (64.0%)	71 (56.8%)	186 (60.8%)	321 (60.5%)
	Black	14 (14.0%)	23 (18.4%)	66 (21.6%)	103 (19.4%)
	Other	22 (22.0%)	31 (24.8%)	54 (17.7%)	107 (20.2%)

Medication Status Groups

- Group classification was based on changes (or the lack thereof) during the overall residential stay.
- Four medication status groups for youth
  - Medication reduction: one or more medications dropped during stay.
  - Medication maintenance: on one or medications at admission, no change made during stay.
  - No medication: not on a medication at any time during stay.
  - Medication increase: one or more medications added during stay.

Dependent Measures

- Critical incident reports are a routine part of treatment and oversight at both organizations.
- Two incident types were used as dependent measures in this study:
  - **Assaultive behavior**: aggression toward people, objects, physical assault, threatening behavior.
  - **Physical restraints**: a single measure. Physical restraint only utilized as an intervention to prevent harm to self or others.
- First two weeks (pre) compared to last two weeks (post).

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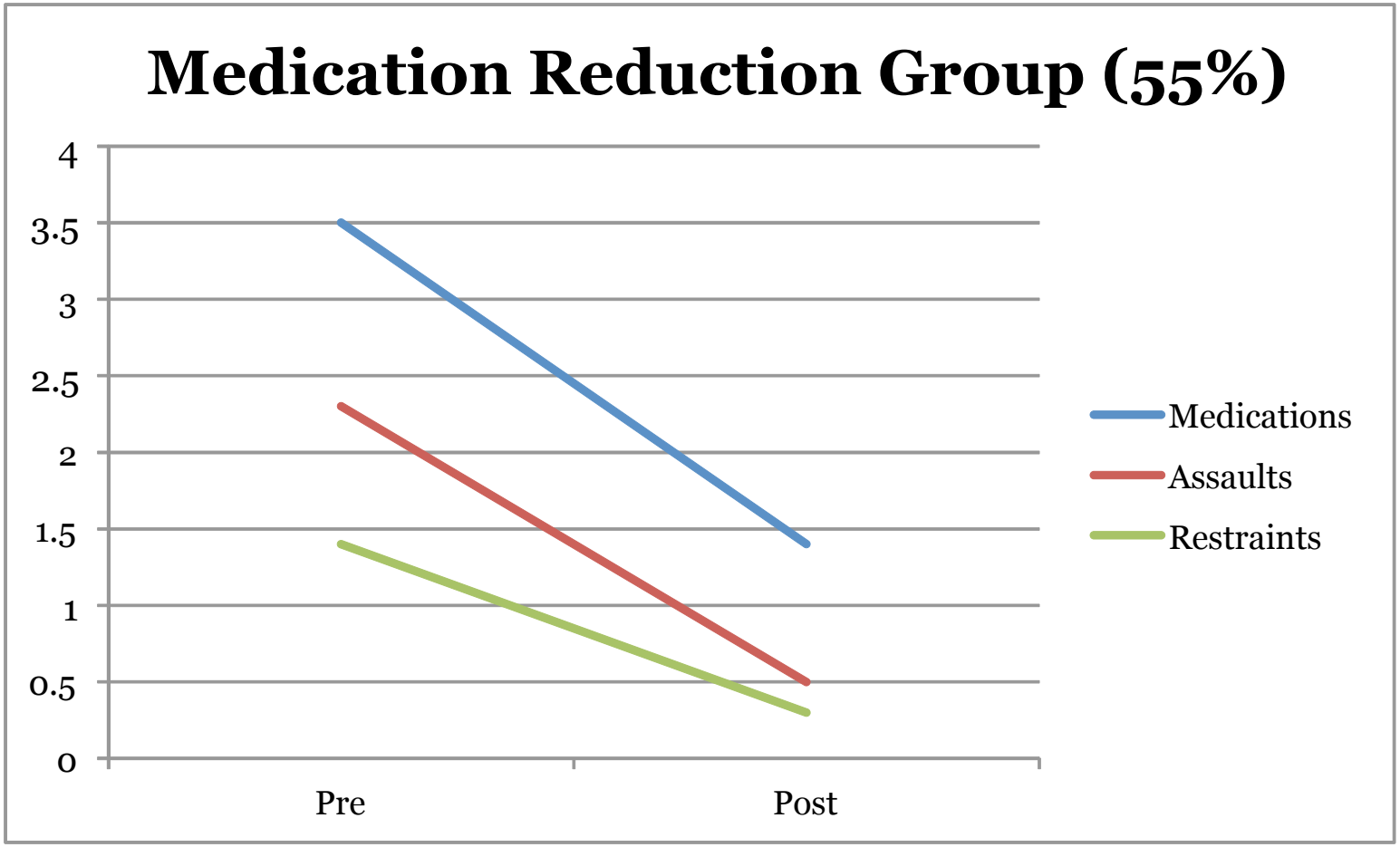
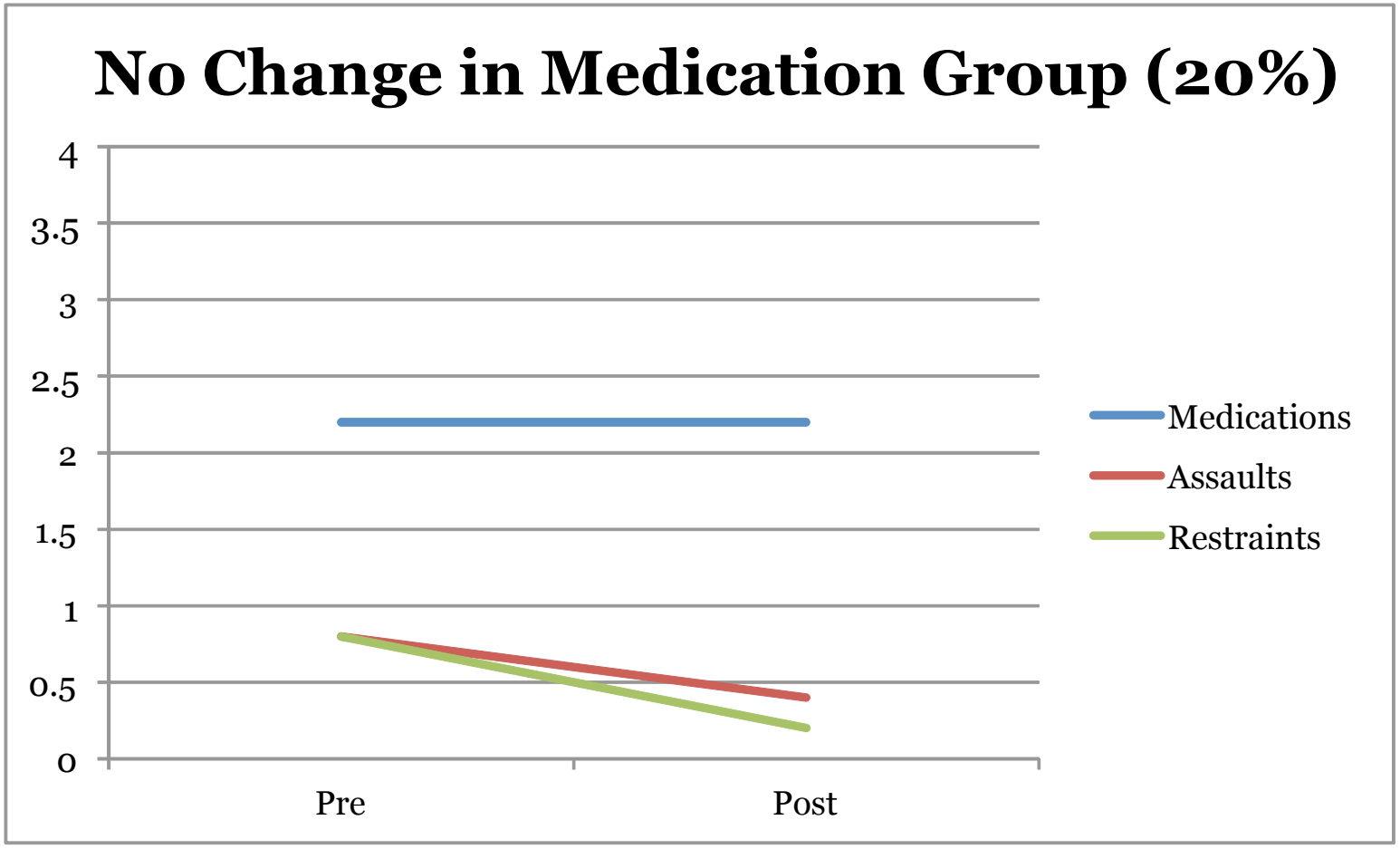
Results



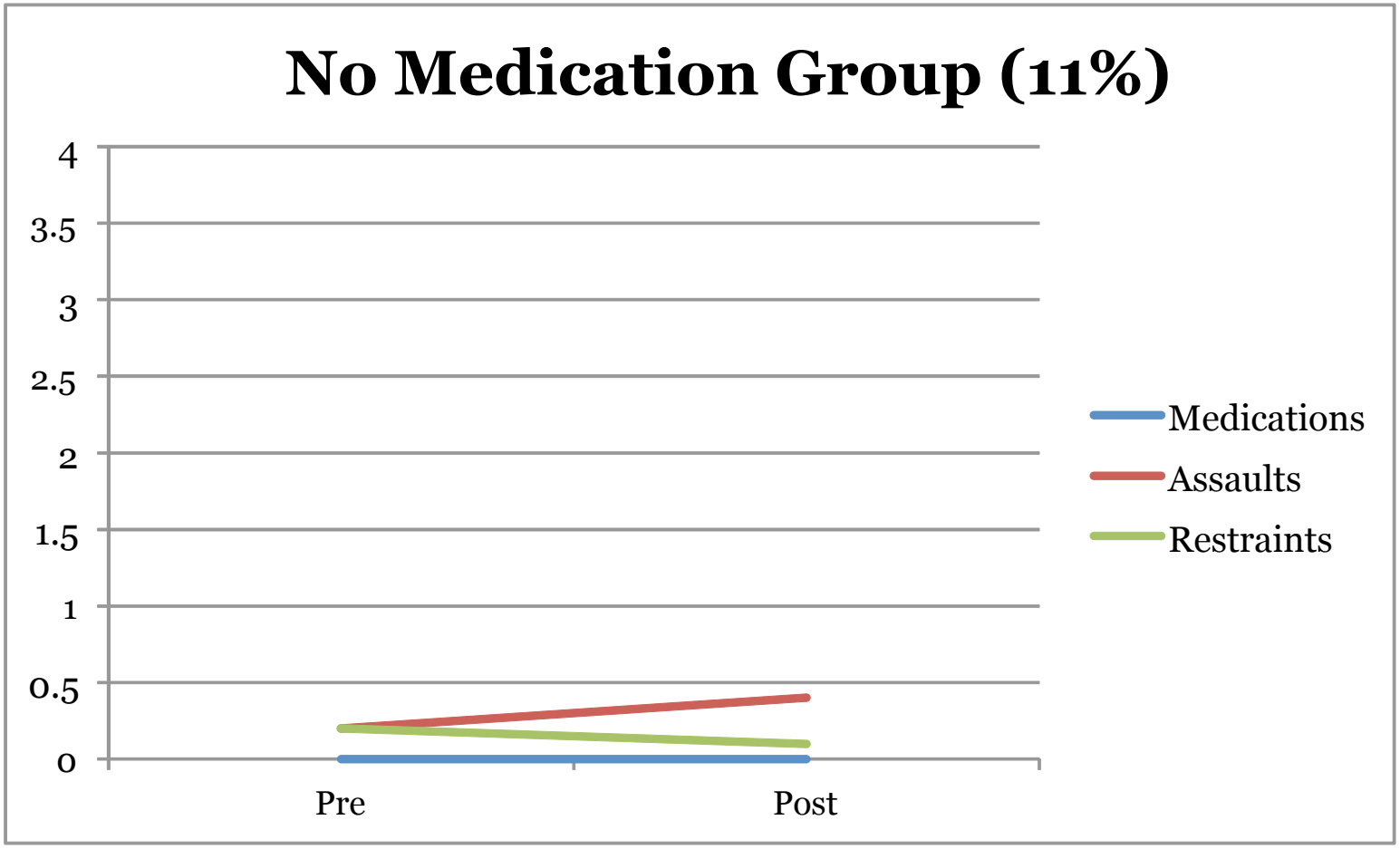
The uniform reductions in all three measures indicates that these youth were on unnecessary, inappropriate, or wrong medications than were deemed appropriate to their clinical needs.

Results



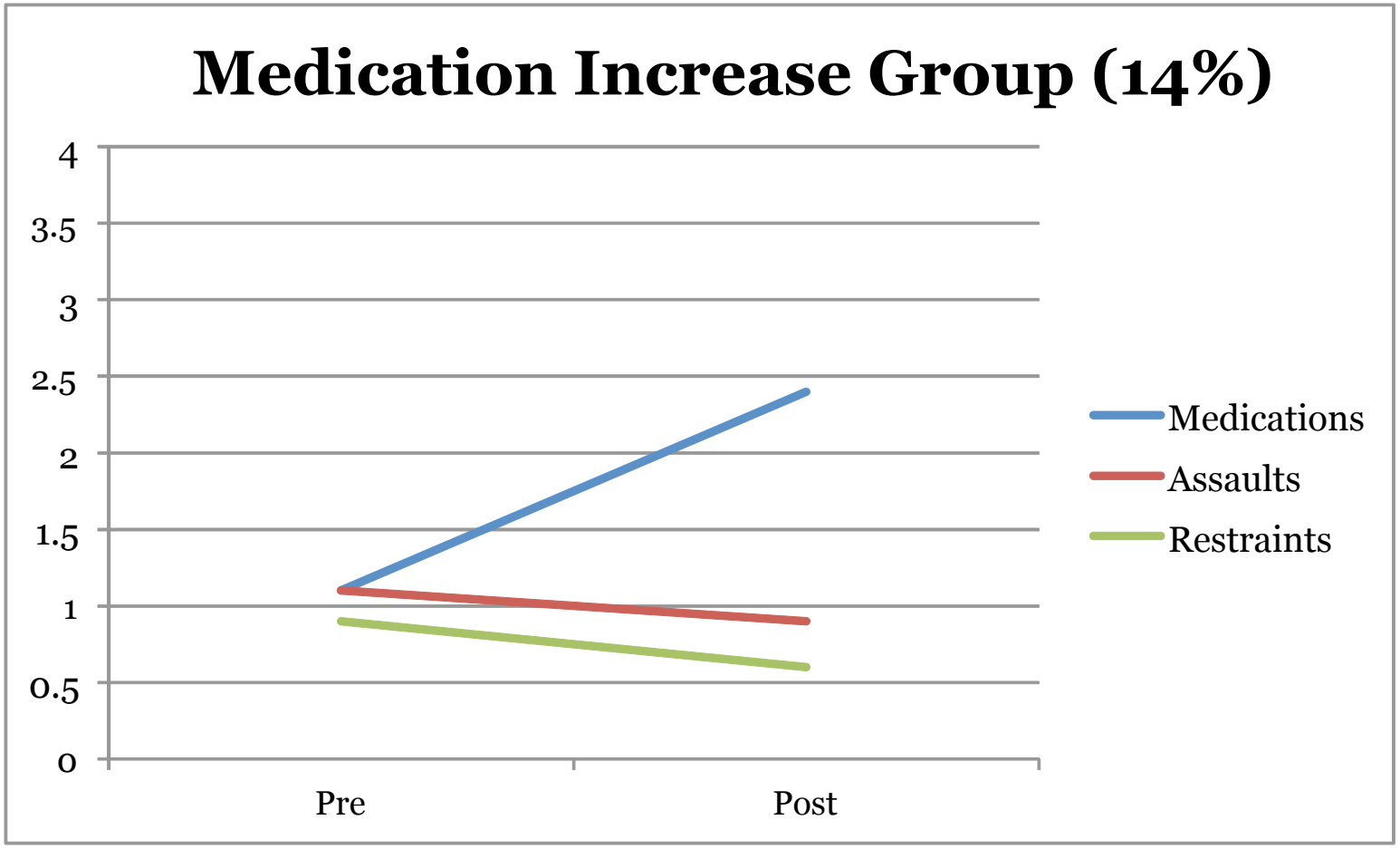
The decrease in assaults and restraints for this group may indicate that psychotropic medications in this group at admission were appropriate and likely driven by behavioral rather than medication interventions.

Results



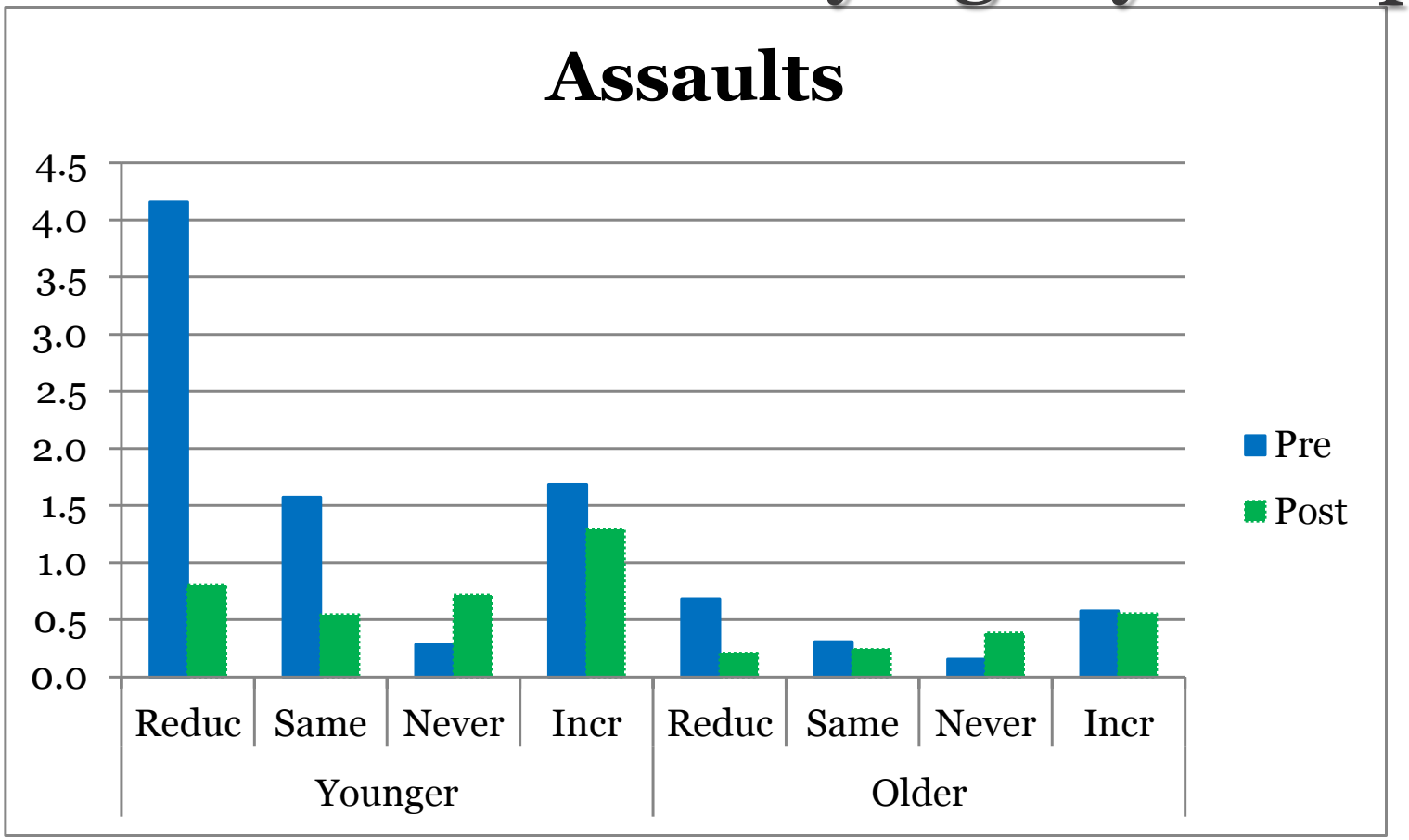
The smallest group, had the lowest levels of assault and restraint. Not being on a medication seems, therefore, not unreasonable. This group was likely in a restrictive setting due to clinical needs other than aggression.

Results



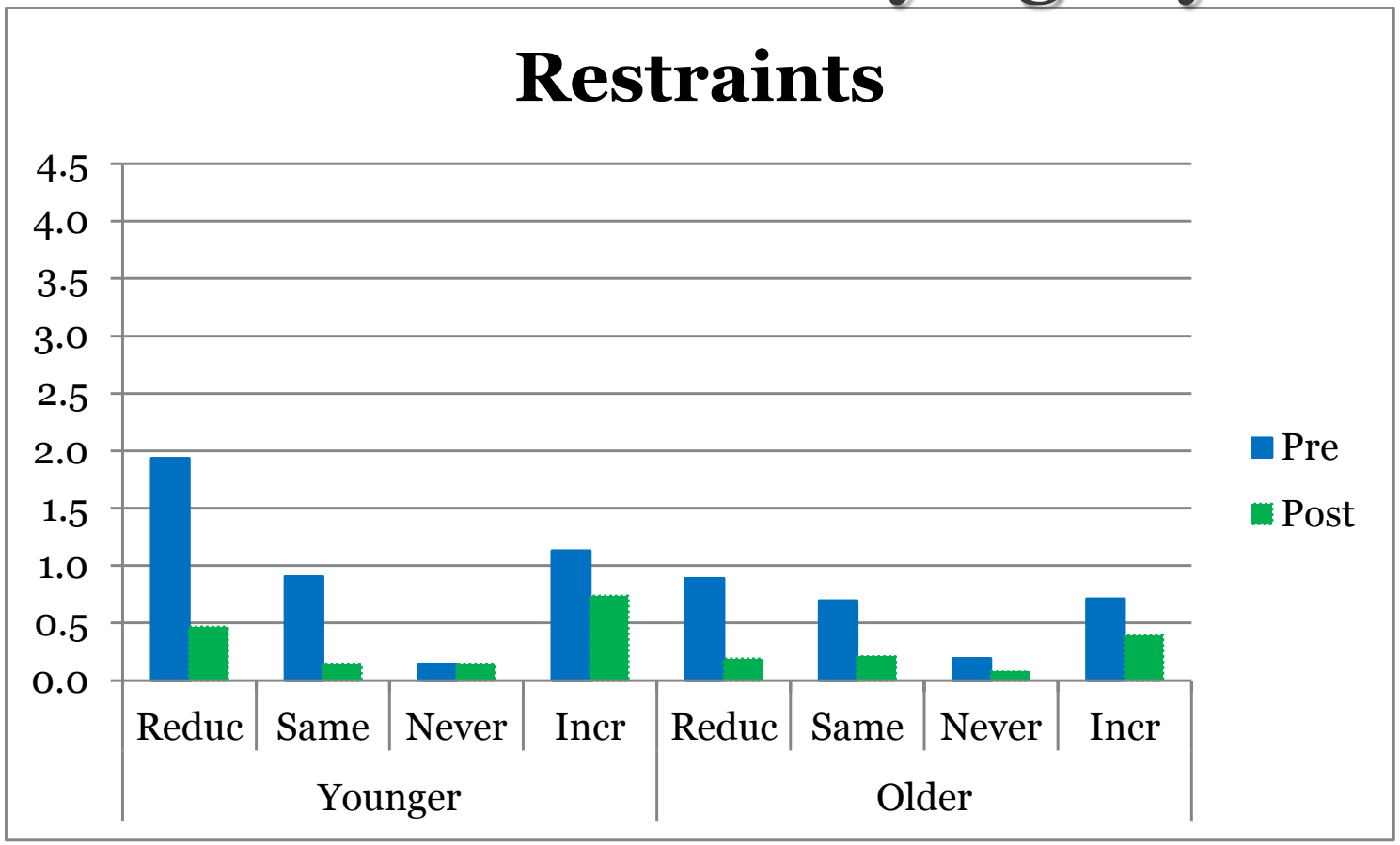
The decrease in assaults and restraints for this group may support the increased use of psychotropic medications in this group.

Assault Rates: Time by Age by Group



Younger children had significantly higher rates of aggression regardless of medication status group. They also experienced significantly greater reductions in aggression during stay.

Restraint Rates: Time by Age by Group



Younger children also were significantly more likely to be restrained, especially for the reduction, no-change, and increase medication status groups.

Treatment Philosophy

- Psychotropic use should be regarded as one option within a constellation of clinical strategies that can improve the youth's functioning and outcome.
- It is important to avoid a pharmacological vs. non-pharmacological dichotomy, which may unintentionally ascribe greater importance to psychotropic medications over other therapies or vice versa.

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Implications: What your RTC needs

- Psychiatrist integrated with treatment teams.
- Information management system for clinical, behavioral and demographic data.
- Procedures for constructing and reporting on dataset timed to decision making.

Implications: Medication management

- "Start low and go slow" is particularly relevant to minimize side effects and observe for therapeutic effects.
  - Adjust medications to the minimum dose which remains effective and minimizes side effects (principle of sufficiency)
  - Periodic attempts at removing the medication should be tried, and the rationale for keeping a child on the medication needs to be documented
- Unconventional treatments should be avoided. Preference should be given to FDA-approved medications with safety and efficacy data for children.
- Psychotropic use should be based on specific indications and not used in lieu of other evidence-based treatments.
- Little data supports the use of drug combinations in children.

Implications: Child and Family Involvement

- Full disclosure about what is known and not known about the medication specific to its use with children.
- Individual beliefs and values of the child and parents must drive decision making.
- Communication must be maintained with child, parent, treatment team members, relevant school personnel, etc.

Bellonci & Huefner, 2014

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Implications: Treatment

- Every child has unique treatment needs and medication responses and therefore requires individualized treatment planning.
- Appropriate treatment for a specific child may fall outside the parameters of guidelines.
- Engagement with the prescriber about any identified outlier prescribing practice is strongly encouraged.
- Review protocols are needed regarding use of psychotropic medications with children and youth.

Implications: Role of Accreditation

- Sets the standard for the field and encourages using a common approach
- Encourages Administrators to see this as a part of their QI purview
- May help to define metrics that can be measured as a part of CQI
- Allows for consumer input into the development of policy

Conclusions

- The high medication rates for youth at the time of admission are often the result of months or years of past medication trials.
- The rationale, treatment response, and side-effects of past and present medication trials are commonly unavailable at the time of admission.
- Dedicated expertise in appropriately managing psychotropic medications in this context is necessary to achieve the principle of sufficiency for these youth.
- The availability of a multidisciplinary team, behavioral experts, and constant supervision greatly aids in achieving this end.

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