A SPECIAL SESSION
WEBINAR

THE OFFICE OF CORRECTIONAL HEALTH &
THE COALITION OF CORRECTIONAL
HEALTH AUTHORITIES
PRESENTS
CLOzapine for Self-Injurious Behavior: Beyond Schizophrenia

January 24, 2018
DISCLOSURES AND GRIEVANCE POLICY

• The American Correctional Association is approved by the American Psychological Association to sponsor continuing education for psychologists. The American Correctional Association maintains responsibility for this program and its content.

• This activity has received no commercial support.

• All individuals in control of content disclosed any/all financial relationships prior to the start of this activity.

• During the planning, Speakers or Planners with any conflict of interest were removed from this activity.
OFFICE OF CORRECTIONAL HEALTH

Elizabeth Gondles, Ph.D.
Director
BettyG@aca.org

Doreen Efeti, M.P.H., M.B.A., MCHES
Manager, Public Health Initiatives
(703) 224-0120
DoreenE@aca.org

Mike Miskell, B.H.S.-H.A.
Correctional Health Specialist
(703) 224-0048
MichaelM@aca.org

Victoria Freire, B.S.
Correctional Health Specialist Associate
(703) 224-0049
VictoriaF@aca.org
ACA EXECUTIVE LEADERSHIP

Lannette Linthicum, M.D.
President

James A. Gondles Jr., C.A.E.
Executive Director
Co-Chairs

Terri Catlett, Deputy Director-Health Services
North Carolina Department of Public Safety

Kellie Wasko, Deputy Executive Director
Colorado Department of Corrections
TERRI CATLETT

• Deputy Director, Health Services, North Carolina Department of Public Safety
• Co-Chair, Coalition of Correctional Health Authorities
PROGRAM OVERVIEW

Introductions
Presentations
Questions
Wrap up
OBJECTIVES

- Overview of mental illness and self-injurious behavior in prison populations
- Overview of clozapine (Clozaril), and what we know about its benefits and side effects in the treatment of schizophrenia
- Review why clozapine might be beneficial in reducing self-injury
- Present the preliminary results of the use of clozapine at N.C. Central Prison for inmates with frequent self-injurious behaviors
- Discuss initial impressions and some remaining open questions.
BRIAN SHEITMAN, M.D.

- Medical Director
  UNC Health Care at WakeBrook, Raleigh NC
- Consulting Psychiatrist, N.C. Central Prison
  North Carolina Department of Public Safety
TED ZARZAR, M.D.

- Clinical Assistant Professor, Department of Psychiatry
  UNC School of Medicine
- Consulting Psychiatrist
  North Carolina Department of Public Safety
Clozapine for Self-Injurious Behavior: Beyond Schizophrenia

Brian Sheitman, MD and Ted Zarzar, MD
Department of Psychiatry
UNC School of Medicine and NC DPS
Disclosures

• None
Outline

• Overview of mental illness and self-injurious behavior in prison populations

• Overview of clozapine (Clozaril), and what we know about its benefits and side effects in the treatment of schizophrenia

• Review why clozapine might be beneficial in reducing self-injury

• Present the preliminary results of the use of clozapine at N.C. Central Prison for inmates with frequent self-injurious behaviors

• Discuss initial impressions, some remaining open questions, and the possibility of expanding this.
Locked Up. But Where?
Rates of institutionalization, per 100,000 adults

Harcourt BE, 2011
Marked reduction in state psychiatric hospital beds

**Key State Hospital Bed Trends, 1955-2016**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>NATIONWIDE</th>
<th>PER 100,000 POPULATION+</th>
<th>AS A PERCENTAGE OF HISTORICAL PEAK*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>Total state hospital beds</td>
<td>11.7</td>
<td>3.5%</td>
</tr>
<tr>
<td>2016</td>
<td>Civil beds in state hospitals</td>
<td>6.2</td>
<td>*</td>
</tr>
<tr>
<td>2016</td>
<td>Forensic patients in state hospitals</td>
<td>5.5</td>
<td>*</td>
</tr>
<tr>
<td>2010</td>
<td>Total state hospital beds</td>
<td>14.1</td>
<td>4.2%</td>
</tr>
<tr>
<td>2005</td>
<td>Total state hospital beds</td>
<td>16.8</td>
<td>5.0%</td>
</tr>
<tr>
<td>1955</td>
<td>Total state hospital beds</td>
<td>337.0</td>
<td></td>
</tr>
</tbody>
</table>

* Adjusted for the growth in U.S. population

* 1955 data are not available.
Mental Illness and Incarceration

Inmates with 12-month Mental Health Problem

- State Prison: 56.2%
- Federal Prison: 44.8%
- Local Jail: 64.2%

Data courtesy of DOJ
Self-injurious behavior

- Terms: Self-injurious behavior (SIB), self-harm, self-mutilation, non-suicidal self-injury.
- Examples:
  - Cutting, scratching, burning, head banging, hitting, biting, opening old wounds, amputation, foreign body insertion/ingestion, overdose, enucleation, smearing feces into wounds/orifices
- Motivations: emotion regulation, punishment, control/autonomy, revenge, attention, feel pain, change environment, obtain pain meds, etc.
SIB Epidemiology

• Adolescents: 13-23% lifetime prevalence

• Adults:
  » 4% lifetime prevalence as part of Trauma Symptom Inventory (Briere and Gil, *Am J Orthopsychiatry*, 1998)
  » 4.9% in I.D. community sample, Glasgow (Cooper et al., *J Intellect Disabil Res*, 2009)
  » 5.9% in random sample of U.S. adults (structured interview, Klonsky ED, *Psychol Med.* 2011)

• Eating disorders:
  » 34.6% lifetime prevalence (Paul, 2002)

• Correctional settings:
  » 5-6% of males and 20-24% of females self-injured each year over a 5-year period (Hawton, 2014)
  » 7-48% of inmates report a history of SIB
  » Depression, suicidal intent, manipulation of environment, emotion regulation, response to hallucinations/delusions
Association between SIB and Violent Crime

- Cohort of 1.8 million individuals (all Swedish citizens born between 1982-1998, >15 y.o.)
- 55,185 (3%) received care for SIB
  - Of these the risk of violent crime conviction was 5x higher in the SIB group, and nearly 2x higher when controlling for psychiatric illness and socioeconomic status
- SIB could reflect traits of impulsivity and problems of emotional/behavioral regulation, which increase risk of violence

Sahlin H, et al. 2017
Typical Management of SIB/Aggression

• **Acute**
  - Intramuscular (sedating) medications
    - Haloperidol, lorazepam, olanzapine, ziprasidone, chlorpromazine
  - Nicotine replacement
  - Seclusion/isolation/restraint
  - Ignore
  - Discharge

• **Long-term**
  - Antidepressants, mood stabilizers, antipsychotics, benzos, beta blockers
  - Cognitive behavioral / Dialectical behavioral therapy
    - Focus is distress tolerance, emotion regulation, mindfulness, establishing safe coping mechanisms
    - Individual and group modalities
  - Behavioral plans
  - Ignore
  - Transfer somewhere else
What is clozapine (Clozaril)?

- It is an antipsychotic medication
- It is the prototype for the “atypicals” or “second generation antipsychotics.” Haldol, Thorazine and Mellaril were some of the typical or first generation antipsychotics.
- The “atypicals” have fewer neurological side effects (tremors, rigidity, dystonias). Examples: Zyprexa, Risperdal, Abilify.
- Clozapine is used primarily for treatment-resistant schizophrenia due to the mandatory requirement for ongoing blood tests.
What clozapine is not!
Clozapine

- Relatively weak $D_2$ binding (unlike most other antipsychotics)
- Binds over 70 receptors (thus can cause a lot of different side effects, many of which are dose dependent)
- Little to no rigidity, tremors, or tardive dyskinesia
Clozapine pharmacology

- **Kinetics**
  - Peak 2 ½ hours, $t_{1/2} = 12$ hours

- **Metabolism**
  - Extensively hepatic
  - CYP 1A2
    - Inducers (decrease levels): smoking, anticonvulsants (3A4)
    - Inhibitors (increase levels): ciprofloxacin, fluvoxamine
Clozapine - History

• Synthesized in 1958; intended as an antidepressant
• First available in Europe
• The “Finnish epidemic” – September, 1975
  » Report of 18 patients with blood disorders, 9 of whom died
• FDA trials in the U.S. are halted
• “Compassionate use” of clozapine approved in the U.S. and its use increases from 1976 to 1982
Clozapine - History

- “Study #30”\(^1\) - 1984
  - FDA mandated that superiority to other drugs be shown, not merely to placebo
- Results were overwhelmingly in favor of clozapine
- Clozapine approved by the FDA in 1989
  - Treatment-resistant schizophrenia only
  - Reduction in risk of recurrent suicidal behavior in schizophrenia or schizoaffective disorders (came at a later date)
- Monitoring mandate: weekly blood counts (CBCs) for 6 months followed by biweekly CBCs for 6 months followed by every 4 week CBCs thereafter for life.

\(^1\)(Kane et al., *Arch Gen Psychiatry*, 1988)
Time to Discontinuation for Inefficacy (IIE)

Proportion of Patients without Event

Overall p-value = 0.010*
Does any one know what this is?
Clozapine adverse effects

- **Agranulocytosis**
  - Absolute Neutrophil Count (ANC) < 500
  - 0.8% incidence at 52 weeks, 0.91% at 78 weeks of treatment (Alvir, Lieberman, et al., *N Engl J Med* 1993)
  - Peak between months 2 and 4; 95% of cases occurring by 24 weeks
  - Risk in first 6 months: 0.7/1000 patient-years; risk after 1 year: 0.39/1000 patient-years
  - Mortality currently very low (0.1-0.3%)

- **Neutropenia**
  - ANC < 1500, 3% risk
  - Benign ethnic neutropenia
Clozapine adverse effects

- Myocarditis/Cardiomyopathy
- Seizures
  - 4.4% w/ > 600 mg; 2.2% 300-600 mg and 1% with < 300 mg
- Weight gain / metabolic syndrome
- Blood clots
- Sedation / dizziness
- Urinary incontinence / enuresis
- Constipation
- Colitis
- Sialorrhea (drooling)
- Orthostatic hypotension
- Elevated heart rate
Clozapine and mortality and schizophrenia

• Evaluation of antipsychotic use and mortality
• 66,881 pts with schizophrenia treated between 1996-2006
• Clozapine associated with **lowest risk of death from any cause**, from suicide, and from ischemic heart disease.
• Long-term (7-11 yrs.) of exposure to antipsychotics associated with lower mortality than no treatment at all.
Beyond Schizophrenia

There are no FDA approved medications for the treatment of self injury
Broad Range of Effectiveness (SAMHSA 2016)

- Clozapine may have utility for a variety of other disorders and conditions
  - treatment of hostility and aggression
  - treatment-resistant bipolar disorder
  - psychogenic polydipsia/hyponatremia
  - Parkinson Disease Psychosis and psychosis in Lewy-Body dementia
  - Borderline Personality Disorder
  - tardive dyskinesia (TD)

- Growing evidence also suggests clozapine may be an option in youth with early onset schizophrenia

- Clozapine is the only antipsychotic with a Food and Drug Administration approval for suicidality and it has the lowest mortality rate among all antipsychotic treatments
Correctional Systems (SAMHSA 2016)

- Every correctional health care system should have a system that provides ready access to clozapine or establishes mechanisms for referral of inmates who are appropriate for treatment with clozapine.

- Every correctional health care system should have policies and procedures to facilitate the safe and appropriate use of clozapine.

- Every correctional health care system should provide appropriate safety monitoring of patients receiving clozapine.


Clozapine and aggression

• Animal models
  » Garmendia et al. (1992): acute clozapine reduces “attack” and “threat” behaviors without increasing immobility; chronic administration had no effect
  » Becker and Grecksch (2003): lesioned ibotenic acid area of ventral hippocampus. Acute clozapine increases non-aggressive behavior
  » Gallitano-Mendel et al. (2008): clozapine increases latency to attack and reduces impulsivity in aggressive mice
Clozapine and aggression and schizophrenia - RCTs

- **Citrome L et al. (Psychiatr Serv 2001)**
  - 157 state hospital inpatients, 14-week trial
  - Clozapine vs risperidone vs olanzapine vs haloperidol
  - Period 1: Fixed dose, Period 2: Variable dose

- **Results**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Baseline Mean</th>
<th>Baseline SD</th>
<th>14 weeks Mean</th>
<th>14 weeks SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clozapine (N=40)²</td>
<td>2.68</td>
<td>1.58</td>
<td>2.24</td>
<td>1.34</td>
</tr>
<tr>
<td>Olanzapine (N=39)</td>
<td>2.35</td>
<td>1.47</td>
<td>2.24</td>
<td>1.73</td>
</tr>
<tr>
<td>Risperidone (N=41)</td>
<td>2.40</td>
<td>1.19</td>
<td>2.49</td>
<td>1.61</td>
</tr>
<tr>
<td>Haloperidol (N=37)</td>
<td>2.42</td>
<td>1.26</td>
<td>2.95</td>
<td>1.51</td>
</tr>
</tbody>
</table>

¹ For subjects who did not complete 14 weeks, the last rating completed
² Significant improvement at 14 weeks compared with baseline (p=.019) and significant superiority in improvement compared with haloperidol (p=.021) and risperidone (p=.012)
Cloz and aggression and schizophrenia - RCTs

- Krakowski M et al. *(Arch Gen Psychiatry, 2006)*
  - 110 state hospital inpatients
  - Dx schizophrenia or schizoaffective disorder
  - Past history of physical assault as inclusion criterion

- MOAS total and physical aggression scores:
  - Clozapine > Olanzapine > Haloperidol
- MOAS verbal aggression score:
  - Clozapine > Olanzapine = Haloperidol
- MOAS aggression against property score:
  - Clozapine = Olanzapine > Haloperidol
Clozapine and suicide and schizophrenia

- International Suicide Prevention Trial (InterSePT) Meltzer HY et al. (Arch Gen Psych, 2003)
- 2-year, multicenter, international RCT in 980 pts comparing clozapine with olanzapine
- Suicide attempts (34 vs 55, p=.03), hospitalizations (82 vs 107, p=.05), and rescue interventions (118 vs 155, p=.01) were all lower in clozapine-treated patients
- 3 suicides in olanzapine group; 5 in clozapine group
Clozapine and Borderline PD

• Low dose (25-100 mg) trial in n=12 patients with BPD (psychosis excluded)
• Noted fewer suicide attempts and less impulsivity in the group overall after 4 months of treatment
• BPRS, CGI, HAM-D
Borderline PD

- Parker GF (*Psychiatric Services*, 2002)
- N=8, 110 hospital days per year in 6 of 8
- After clozapine, avg LOS 60.5 days; if readmitted avg LOS 54.8 days
- Among all discharged patients average LOS fell to 6.3 days per pt per year (range, 0 to 70 days)
- **Estimated cost savings to Ohio of $36,000 per patient per year**
Intellectual disability

  » N=24 patients with ID and co-morbid psychotic illness; retrospective
  » Outcome: CGI global improvement scale: 21% minimal improvement; 42% much improved; 29% very much improved; 8% no change

  » N=33, ID with comorbid psychotic illness
  » Outcome: CGI global improvement: mean improvement of 2.0 ± 0.8, or “much improved”

  » N=2 individuals with profound ID, refractory to risperidone
  » Marked improvement on clozapine in both SIB/aggression with minimal adverse effects
Autism

• Risperidone and aripiprazole approved for irritability in patients with autism
• 30 to 50% nonresponse rate*
• Retrospective analysis, n=6, 23.2 ± 6.9 y.o., 4 ♀, 2 ♂
• 4 had received risperidone; 4 carbamazepine; all had received a first gen antipsychotic
• Destroying property and physical assaults most common
• Clozapine: days with aggression decreased from 19.1% to 10.7%; mean # meds reduced from 4.4 to 2.2

Heterogeneous state hospital patients

Kraus and Sheitman, Journal of Neuropsychiatry and Clinical Neuroscience 2005

FIGURE 1. Effect of Clozapine on the Number of Violent Events In Five Persistently Violent Patients. Data are Monthly Averages of the Number of Violent Events for the 3 Months Prior to and the 3 Months Following the Initiation of Clozapine Treatment. (See Text for Results of Statistical Analysis.)
N.C. Central Regional Hospital Cohort
Zarzar and McEvoy, Ther Adv Psychopharmacol, 2013

• 4 female patients characterized by:
  » Multiple hospitalizations, polypharmacy, failed medication trials, frequent seclusion/restraint, high utilization of staff resources (1:1 obs), misery

  » Clozapine reduced aggression, reduced self-injury, reduced need for seclusion/restraints, reduced PRN med usage, and facilitated discharge back to the community
A word on dosing

• FDA-approved for schizophrenia up to 900 mg
• Vanderzwaag et al. (AJP, 1996) found moderate serum levels (200-300 ng/ml) no different than higher levels (350-450), and both superior to low levels (50-150) in scz
• Recent Cochrane review (Subramanian et al., 2017) found no difference in effect between very low (0-149 mg), low (150-300 mg) and standard (301-600 mg) dosing regimens
Could clozapine be used at NC’s Central Prison (CP) for extremely difficult SIB cases?

- Repeated episodes of self-injury, and suicide attempts
- Treatment refractory
- Multiple hospitalizations
- Poly-pharmacy
- No medical contraindications
- Willingness to take clozapine and ability to complete blood work
- Able to give informed consent
N.C. Central Prison

- Inmate capacity: 752
- Hospital: 120 medical/surgical beds, 216 mental health beds
Step 1: Develop a Policy (consistent with the community standard)

- Coordinate policies for clozapine use with the NC state hospitals
- Completed June 2016
- Currently clozapine use in the NC DPS system is consistent with what occurs at the NC state psychiatric hospitals.
Step 2: Care coordination at CP, and then for follow-up post discharge from CP

Pharmacy
Medical service
Nursing
Lab
Psychiatry
Psychology

Buy-in from all disciplines is critical!
Psychiatry role

- Assess whether patients meet criteria for treatment
- Must be registered with clozapine REMS program (clozapinerems.com)
- Provide education and obtain informed consent
- Order and review monitoring labs
- Assess effectiveness and side effects, and titrate dose accordingly
  - Titration may take 2-4 weeks (slower generally better)
  - More attention during initial phase of treatment
# M.D. monitoring

## CLOZAPINE REMS

The Single Shared System for Clozapine

**No Blood, No Drug**

---

## ANC Level

### Normal Ranges for a New Patient
- General Population (ANC > 1500/μL)
- BEN Population (ANC = 1000/μL)
- Obtain at least two baseline ANC levels before initiating treatment

### Treatment Recommendation
- Initiate treatment
- If treatment interrupted:
  - < 30 days, continue monitoring as before
  - > 30 days, monitor as if new patient
- Discontinuation for reasons other than neutropenia

### ANC Monitoring
- Weekly from initiation to 6 months
- Every 2 weeks from 6 to 12 months
- Monthly after 12 months
- See Section 2.4 of the full Prescribing Information

---

**Mild Neutropenia (1000 to 1499/μL)**

### GENERAL POPULATION
- Continue treatment

### BEN POPULATION
- Weekly from initiation to 6 months
- Every 2 weeks from 6 to 12 months
- Monthly after 12 months
- See Section 2.4 of the full Prescribing Information

---

**Moderate Neutropenia (500 to 999/μL)**

### GENERAL POPULATION
- Recommend hematology consultation
- Interrupt treatment for suspected clozapine-induced neutropenia
- Resume treatment once ANC normalizes to > 1000/μL

### BEN POPULATION
- Three times weekly until ANC > 1000/μL
- Once ANC > 1500/μL, check ANC weekly for 4 weeks, then return to patient's last "Normal Range" ANC monitoring interval

---

**Severe Neutropenia (less than 500/μL)**

### GENERAL POPULATION
- Recommend hematology consultation
- Interrupt treatment for suspected clozapine-induced neutropenia
- Do not reschedule unless prescriber determines benefits outweigh risks

### BEN POPULATION
- Three times weekly until ANC > 1000/μL
- If patient rechallenged, resume treatment as a new patient under "Normal Range" monitoring once ANC > 1000/μL

---

**ANC Level**

**Treatment Recommendation**

**ANC Monitoring**

---

* Confirm all initial reports of ANC less than 1500/μL (ANC = 1000/μL for BEN patients) with a repeat ANC measurement within 24 hours

** If clinically appropriate
Pharmacy role

• Also registered with clozapine REMS program
• Serve as designee to enter lab values into REMS website
• Pharmacist will not dispense medication unless labs are obtained and acceptable
• Pharmacist will report need to stop medications to the provider
• Pharmacist will monitor other medications and potential drug-drug interactions
Nursing protocol/training

• Self-directed, online training via LMS (Learning Management System)
  » Discusses clozapine indications and potential side effects

• Nursing’s role on the unit:
  » Make sure labs/EKG are completed
  » Evaluate/reinforce patient’s understanding of treatment
  » Monitor adherence, vitals
  » Monitor potential side effects (sedation, dizziness, constipation, symptoms of infection or myocarditis, etc.)
Psychology role

• **Initial phase**
  » Motivating patients
  » Structure/support
  » Help to manage behavioral problems

• **Maintenance phase**
  » Patients are often in a better place to participate with therapy
  » DBT, supportive therapy
  » Help maintain progress over time
  » Give patients (and providers!) hope
Step 3: Identify patients

- Patients on unit 2100 (restrictive housing) or elsewhere in the NC DPS system that would meet the criteria for a clozapine trial.
Two questions

• Is it feasible? (agree to take clozapine, sign the consent, allow blood draws, not try to extort us for additional privileges etc.)

• Does it work? (reduce self injury)
Feasibility

• Would most patients agree to try clozapine to reduce self injury? Yes. Thirteen patients approached. Ten agreed. Only 2 have stopped. (3 have taken it for about 1 year). Many more have asked for it.

• Would patients allow their blood to be drawn regularly? YES

• Would patients take the medication regularly? YES, there has been greater than 95% medication adherence.
Patient demographics

- 10 male patients
- Age: 28 (range 24-44)
- Race: AA 5, White 4, Other 1
- Primary Dx:
  - Antisocial Personality Disorder 7
  - Borderline Personality Disorder 3
- Median time in segregation in the 3 years pre-clozapine: 27 months (range 6-36)
Did it work? (n=8)

<table>
<thead>
<tr>
<th></th>
<th>Pre-clozapine</th>
<th>Post-clozapine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgent care visits</td>
<td>94</td>
<td>28</td>
</tr>
<tr>
<td>Outside ED visits</td>
<td>37</td>
<td>11</td>
</tr>
<tr>
<td>Infractions</td>
<td>197</td>
<td>39</td>
</tr>
</tbody>
</table>

- 70% decrease in urgent care visits
- 70% decrease in outside ED visits
- 67% decrease in infractions

*** Average dose was 125 mg/day.
Effect on infractions (n=8)

Number of disciplinary infractions for patients (n=8) by quarter relative to clozapine initiation (six months pre/post-treatment)

Number of infractions:
- Time Relative to Clozapine Initiation (Annual Quarters)*:
  - -2
  - -1
  - 1
  - 2

Clozapine Started
12-month effect on infractions

Number of disciplinary infractions for patients (n=3) by quarter relative to clozapine initiation (twelve months pre/post-treatment)
Serious infractions

- Assaults
  - 6 months pre-clozapine: 40
  - 6 months post-clozapine: 20
- Fires
  - 6 months pre-clozapine: 3
  - 6 months post-clozapine: 1
- Floods
  - 6 months pre-clozapine: 5
  - 6 months post-clozapine: 2
## A closer look

<table>
<thead>
<tr>
<th>Patient</th>
<th>Urgent care Pre-clozapine</th>
<th>Urgent care Post-clozapine</th>
<th>ED visits Pre-clozapine</th>
<th>ED visits Post-clozapine</th>
<th>Infractions Pre-clozapine</th>
<th>Infractions Post-clozapine</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>30</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>45</td>
<td>9</td>
<td>11</td>
<td>3</td>
<td>68</td>
<td>38</td>
</tr>
<tr>
<td>3</td>
<td>11</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>26</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>1</td>
<td>9</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>18</td>
<td>12</td>
<td>2</td>
<td>1</td>
<td>39</td>
<td>12</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Drop out</td>
<td>After 1 week</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drop out</td>
<td>After 2 weeks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>94</td>
<td>28</td>
<td>37</td>
<td>11</td>
<td>197</td>
<td>65</td>
</tr>
</tbody>
</table>
Case Discussion #1

• 26 yo male, incarcerated since 2008
• Primary charge: Robbery with a dangerous weapon
• He has spent most of his time in prison in restrictive housing
• Engages in frequent SIB (swallowing foreign bodies and cutting)
• In addition, has accumulated 426 infractions to date
• Tried many medications/therapies to control his behaviors with limited success
Case Discussion #1

• Began clozapine July 2016
• SIB ended, infractions went from 50 the prior year to 17 post-clozapine; None since 04/17
• When he first began clozapine he told us all he thought of was killing people, now describes himself as feeling calm.
• Remains antisocial but much less violent toward self or others
Case Discussion #2

- 24 y.o. male, in and out of jail/prison since a teenager
- Primary charge: Assault with a deadly weapon inflicting serious injury
- Came from the jail in January 2016 where he was extremely violent and self-injurious
- Had been in restrictive housing since his arrival
- Engages in frequent self-injury (swallowing foreign bodies, head banging, cutting, trying to hang himself)
- Tried many medications/therapies to control his behaviors with limited success
- 6 months prior to clozapine initiation: 69 infractions
Case Discussion #2

- Clozapine started in July 2016
- Self-injury ended, infractions went down to 34 for the year with none in the last 3 months (averaging 10/month prior to clozapine)
- He had described himself as “angry all the time,” on clozapine stated he doesn’t get angry so fast
- Also remains antisocial but much less violent
Transition from inpatient care

- Need to ensure blood draws are ordered on a regular basis
- Need to have REMS-registered provider in place to prescribe med and review labs
  - Can be psychiatry or another specialty, particularly in maintenance phase
- Interruptions in treatment may require additional monitoring
- Remember: the vast majority of people on clozapine take it at home!
Pitfalls

• Need all disciplines and custody on board
• Secondary gain and confounding variables:
  » Motivation to stay in mental health
  » More attention from providers
  » Motivation to switch locations
  » Selling meds
• Hoarding and overdose risk
  » Crush/float medication
Not that money matters, but...
Conclusions

- Clozapine can be used in the inmate population. (Adherence to blood draws and medication is high).
- Preliminary data suggest clozapine shows efficacy in reducing SIB for some inmates.
- Low doses appear effective with benefits independent of sedation.
- The additional role of psychosocial therapy needs to be more firmly linked to obtain optimal outcomes.
- Infractions also were reduced suggesting the potential role for clozapine in limiting aggression toward others.

- **WE THINK THIS COULD BE IMPLEMENTED IN OTHER STATES WITH SIMILAR RESULTS.**
A team effort!

- Dr. O’Connell, Dr. Harrelson
- Ms. Catlett
- Pharmacy (Ginger, Gary etc.)
- Nursing (Ms. Myers etc.)
- Valerie Langley
- Dr. Morris
- Dr. Wilson
- Ms. Rashad
- Dr. Robbins, Dr. Williams
- Dr. Strahl and Dr. Lucking
- Custody Officers
- Dr. Saik and Dr. Stephenson (NC DHHS)
Questions?

brian_sheitman@med.unc.edu

theodore_zarzar@med.unc.edu

terri.catlett@ncdps.gov
CLOSING REMARKS
An email will be sent out to all participants following this webinar.

- In order to receive CE nursing credits, CE psychology credits, or a certificate of training hours for other corrections professionals, you must follow the link in the email and complete the evaluation.

If you require assistance, please contact Mike Miskell at michaelm@aca.org or (703) 224-0048.
THANK YOU FOR ATTENDING

To replay the webinar, please visit the ACA Office of Correctional Health Resource Center

Special Thank You to the entire Coalition of Correctional Health Authorities for making this webinar possible.