



# Commercial Day

October 18, 2022



**Igalmi**<sup>™</sup>  
(dexmedetomidine)  
sublingual film • 120 mcg, 180 mcg

# Forward-Looking Statements

This presentation includes "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements in this presentation include but are not limited to: statements regarding BioXcel Therapeutics' commercial plan and strategy for IGALMI™ including expected timelines, expected benefits to providers and patients from treatment using IGALMI™; potential market size and opportunity for products and product candidates; and its future financial and operational results. When used herein, words including "anticipate," "being," "will," "plan," "may," "continue," and similar expressions are intended to identify forward-looking statements. In addition, any statements or information that refer to expectations, beliefs, plans, projections, objectives, performance, or other characterizations of future events or circumstances, including any underlying assumptions, are forward-looking. All forward-looking statements are based upon BioXcel Therapeutics' current expectations and various assumptions. BioXcel Therapeutics believes there is a reasonable basis for its expectations and beliefs, but they are inherently uncertain.

BioXcel Therapeutics may not realize its expectations, and its beliefs may not prove correct. Actual results could differ materially from those described or implied by such forward-looking statements as a result of various important factors, including, without limitation: its limited operating history; its incurrence of significant losses; its need for substantial additional funding and ability to raise capital when needed; its limited experience in drug discovery and drug development; its dependence on the success and commercialization of IGALMI™, BXCL501, BXCL502 and BXCL701 and other product candidates; the Company has limited experience in marketing and selling drug products; IGALMI™ or the Company's product candidates may not be accepted by physicians or the medical community in general; the failure of preliminary data from its clinical studies to predict final study results; failure of its early clinical studies or preclinical studies to predict future clinical studies; its ability to receive regulatory approval for its product candidates; its ability to enroll patients in its clinical trials; undesirable side effects caused by the Company's product and product candidates; its novel approach to the discovery and development of product candidates based on EvolverAI; its exposure to patent infringement lawsuits; its ability to comply with the extensive regulations applicable to it; impacts from the COVID-19 pandemic; and the other important factors discussed under the caption "Risk Factors" in its Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2022, as such factors may be updated from time to time in its other filings with the SEC, which are accessible on the SEC's website at [www.sec.gov](http://www.sec.gov) and the Investors section of our website at [www.bioxceltherapeutics.com](http://www.bioxceltherapeutics.com).

These and other important factors could cause actual results to differ materially from those indicated by the forward-looking statements made in this presentation. Any such forward-looking statements represent management's estimates as of the date of this presentation. While BioXcel Therapeutics may elect to update such forward-looking statements at some point in the future, except as required by law, it disclaims any obligation to do so, even if subsequent events cause our views to change. These forward-looking statements should not be relied upon as representing BioXcel Therapeutics' views as of any date subsequent to the date of this presentation.

# Indication and Important Safety Information

## INDICATION

IGALMI is indicated for the acute treatment of agitation associated with schizophrenia or bipolar I or II disorder in adults. Limitations of Use: The safety and effectiveness of IGALMI have not been established beyond 24 hours from the first dose.

## IMPORTANT SAFETY INFORMATION

IGALMI can cause serious side effects, including:

- Decreased blood pressure, low blood pressure upon standing, and slower than normal heart rate, which may be more likely in patients with low blood volume, diabetes, chronic high blood pressure, and older patients. IGALMI is taken under the supervision of a healthcare provider who will monitor vital signs (like blood pressure and heart rate) and alertness after IGALMI is administered to help prevent falling or fainting. Patients should be adequately hydrated and sit or lie down after taking IGALMI and instructed to tell their healthcare provider if they feel dizzy, lightheaded, or faint.
- Heart rhythm changes (QT interval prolongation). IGALMI should not be given to patients with an abnormal heart rhythm, a history of an irregular heartbeat, slow heart rate, low potassium, low magnesium, or taking other drugs that could affect heart rhythm. Taking IGALMI with a history of abnormal heart rhythm can increase the risk of torsades de pointes and sudden death. Patients should be instructed to tell their healthcare provider immediately if they feel faint or have heart palpitations.
- Sleepiness/drowsiness. Patients should not perform activities requiring mental alertness, such as driving or operating hazardous machinery, for at least 8 hours after taking IGALMI.
- Withdrawal reactions, tolerance, and decreased response/efficacy. IGALMI was not studied for longer than 24 hours after the first dose. Physical dependence, withdrawal symptoms (e.g., nausea, vomiting, agitation), and decreased response to IGALMI may occur if IGALMI is used longer than 24 hours.

The most common side effects of IGALMI in clinical studies were sleepiness or drowsiness, a prickling or tingling sensation or numbness of the mouth, dizziness, dry mouth, low blood pressure, and low blood pressure upon standing.

These are not all the possible side effects of IGALMI. Patients should speak with their healthcare provider for medical advice about side effects.

Patients should tell their healthcare provider about their medical history, including if they suffer from any known heart problems, low potassium, low magnesium, low blood pressure, low heart rate, diabetes, high blood pressure, history of fainting, or liver impairment. They should also tell their healthcare provider if they are pregnant or breastfeeding or take any medicines, including prescription and over-the-counter medicines, vitamins, and herbal supplements. Patients should especially tell their healthcare provider if they take any drugs that lower blood pressure, change heart rate, or take anesthetics, sedatives, hypnotics, and opioids.

Everyone is encouraged to report negative side effects of prescription drugs to the FDA. Visit [www.fda.gov/medwatch](http://www.fda.gov/medwatch) or call 1-800-FDA-1088. You can also contact BioXcel Therapeutics, Inc. at 1-833-201-1088 or [medinfo@bioxcetherapeutics.com](mailto:medinfo@bioxcetherapeutics.com).

Please see full [Prescribing Information](#).

# Agenda and Speakers

- A Disruptive Approach to the Untapped Agitation Market
- Psychomotor Agitation
- The Front Lines of Agitation
- Hospital Process: How the System Works
- IGALMI™ Commercial Overview & Updates
- Panel Q&A Session



**Vimal Mehta, PhD**  
Founder and CEO



**Matt Wiley**  
Chief Commercial Officer



**Brenden Schultek**  
Vice President of Sales



**Sheldon Preskorn, MD**  
President and CEO, World-Wide  
Clinical Psychopharmacology  
Consultation



**Karen Sands, MSN,  
APRN-BC, ANP,  
CCRN, FCCM**  
Hospitalist Adult Nurse  
Practitioner



**Jacob Hanaie,  
PharmD, APh, BCPP**  
Kedren Psychiatric Hospital and  
Community Mental Health Center

# A Disruptive Approach to the Untapped Agitation Market

Vimal Mehta  
Founder & CEO



# Innovation Shaping the Agitation Market

Similar to the Depression Market in the 1980s

## Depression Market

### The Philadelphia Inquirer

*“Drugs now treating depression generate more than a billion dollars in worldwide annual sales, financial analysts say. **Before Prozac's introduction in 1986, the U.S. anti-depressant market was relatively stagnant, generating about \$280 million in annual sales, estimates.**”*  
*Jerry Brimeyer, a drug analyst for Dean Witter Reynolds (1990)*

### THE WALL STREET JOURNAL.

*“Psychiatrists say **clinical depression still is badly underdiagnosed**, suggesting the world-wide anti-depressant market could expand faster than its current annual rate of about 10%.” (1992)*

Innovation  
driving **market  
creation**

Historically  
**underdiagnosed  
and underserved**  
markets

**No commercial  
precedent or  
analogs**

IGALMI marketing and education  
efforts are highlighting the  
**undervalued agitation market**



**Igalmi**<sup>™</sup>  
**(dexmedetomidine)**  
sublingual film • 120 mcg, 180 mcg

# Disruption is in our DNA

Building a Unique Biopharma Model



*Delivering  
innovation*

First public AI  
company focused on  
neuroscience and  
Immuno-oncology  
(2018)



*Disrupting  
drug development  
paradigm*

IND to commercial  
launch of IGALMI™  
in under 4 years



*First oral film  
treatment for  
BPD/SCZ agitation  
market*

Built integrated  
commercial team and  
implementing dynamic  
launch model



*Creative  
\$260m strategic  
financing in  
April 2022*

OnkosXcel  
Therapeutics



*Poised to  
capture 139-  
million-episode  
agitation market*

Bipolar,  
Schizophrenia  
& Alzheimer's  
related agitation

# Well-Positioned to Help Address Significant U.S. Market Opportunity

\$15B Potential Market Opportunity<sup>6</sup>



## 139M Agitation Episodes

**16M**  
BPD/SCZ  
Institutional  
Episodes<sup>1-3</sup>

  
**Igalmi**<sup>™</sup>  
(dexmedetomidine)  
sublingual film • 120 mcg, 180 mcg

**23M**  
BPD/SCZ  
At-Home\*  
Episodes<sup>1-4</sup>

**BXCL501\***  
**SERENITY III Pivotal Trial:**  
Top-line Data Readout Expected in 1H 2023

**100M**  
Alzheimer's\*  
Episodes<sup>1-5</sup>

**BXCL501\***  
**TRANQUILITY II**  
Top-line Data Readout  
Expected in 1H 2023

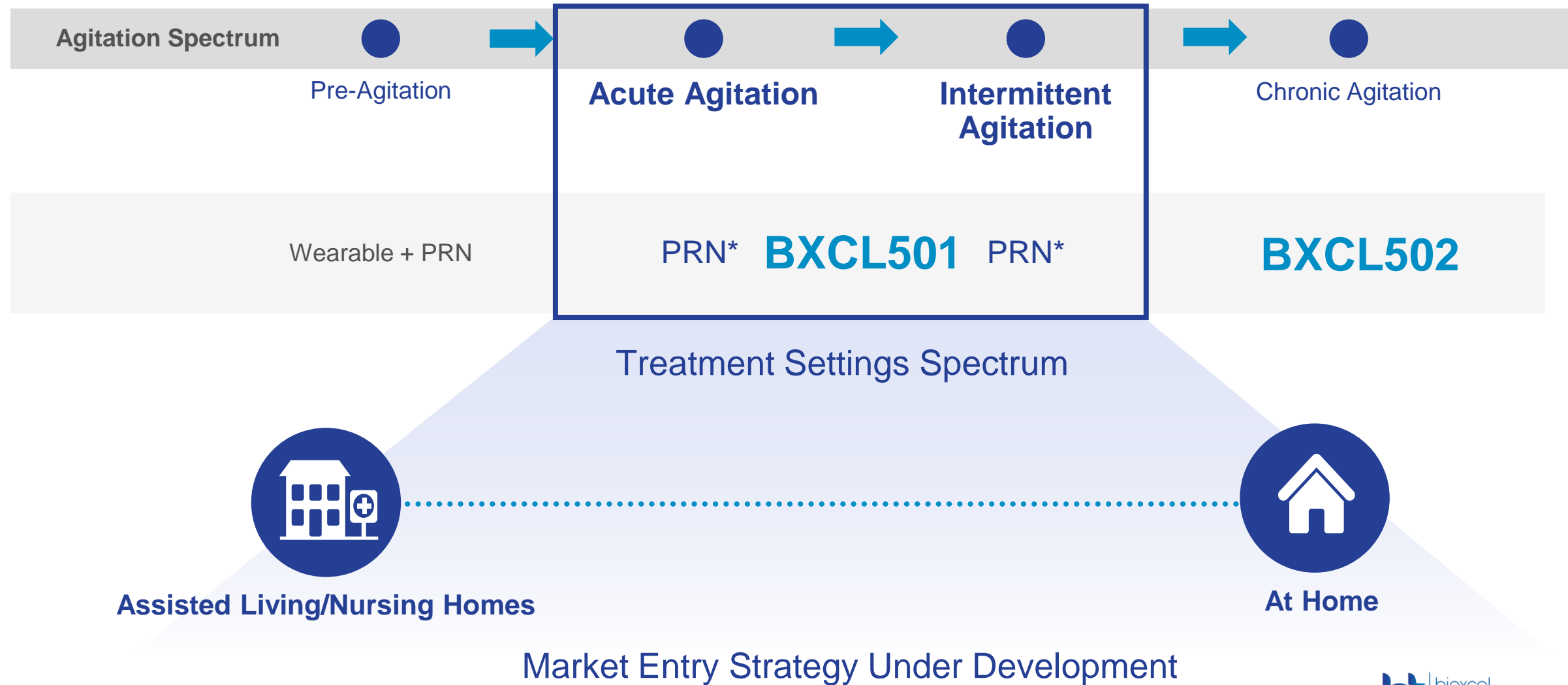
1. Wu, 2006, NAMI 2. NIMH- Prevalence of bipolar disorder in adults. November 2017. Accessed June 24, 2021. [https://www.hcp.med.harvard.edu/ncs/ftpdir/NCS-R\\_12-month\\_Prevalence\\_Estimates.pdf](https://www.hcp.med.harvard.edu/ncs/ftpdir/NCS-R_12-month_Prevalence_Estimates.pdf) 3. Data on File 4. inVibe Patient Agitation Market Research, July 2022 (n=57) 5. Data on File. 6 139M episodes @ \$105/episode

\*Investigational use; safety and efficacy not established



# Comprehensive Alzheimer's Disease Program Strategy

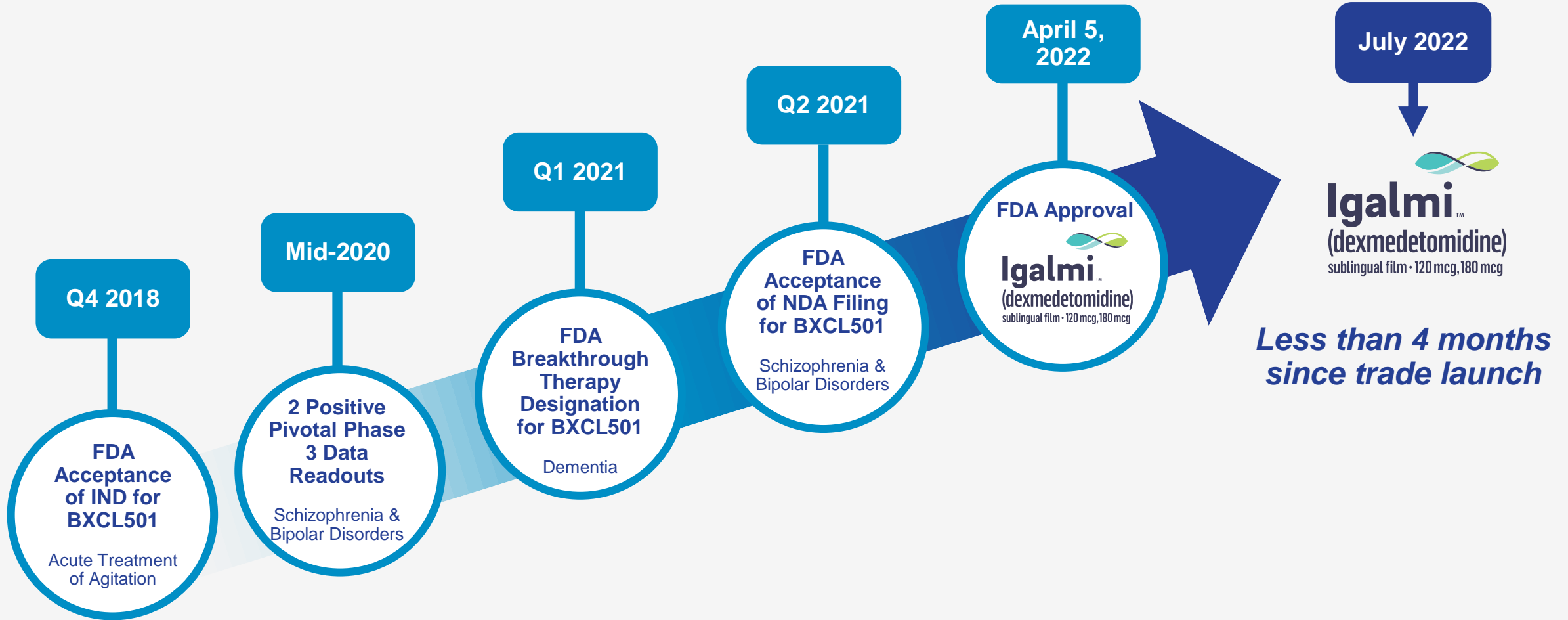
## Retail Prescription Market



\*As needed

# From IND Acceptance to IGALMI™ Launch in 4 Years

First AI-Derived, FDA-Approved Drug With Novel Mechanism of Action



# IGALMI™ (dexmedetomidine) Sublingual Film

Approved for Acute Treatment of Agitation Associated with Schizophrenia or Bipolar I or II Disorder in Adults



First and only FDA-approved orally dissolving sublingual film with broad label **covering mild, moderate, and severe agitation**

IGALMI profile represents **significant game-changing market potential**

Limitations of Use: The safety and effectiveness of IGALMI have not been established beyond 24 hours from the first dose. Please see Important Safety Information and full Prescribing Information at [www.igalmihcp.com](http://www.igalmihcp.com)

# Positive Commercial Momentum in Under 4 Months

Well-positioned to Maximize IGALMI Market Potential



- **Positive market reception** from key hospital stakeholders
- Highly favorable **market dynamics** to IGALMI value proposition
- **Gaining market access** across multiple institutions
- **Expanding national sales team** to cover ~1700 hospitals in 70 geographies

# Psychomotor Agitation

Sheldon Preskorn, M.D.

Speaker is acting on behalf of and is a paid consultant to BioXcel Therapeutics, Inc. This material is intended for an investor audience only. The information contained in the following material is intended to provide background and educational information only and does not constitute medical advice. Individual results will vary among patients and depend on many factors. A patient's healthcare provider should consider the circumstances of each patient.

# Personal Experience in the Emergency Department



- Witnessed two firefights in the ER
- Was held hostage in the office at gunpoint
- Suffered a torn ligament restraining an agitated patient who was trying to attack another physician
- Personally knew 10 HCPs who were killed by agitated patients
- Recent experience: 2 patients refused IM injections
  - Would have been good candidates for non-invasive treatment with faster onset of action than oral tablets

# Psychomotor Agitation

## Associated with Poor Outcomes in Patients with Schizophrenia or Bipolar Disorder

Psychomotor agitation is characterized by motor restlessness and irritability (mild) progressing to aggressive and/or violent behavior (severe)

### PREVALENCE



**More than 5%** of individuals in the United States are diagnosed with schizophrenia or bipolar disorder.

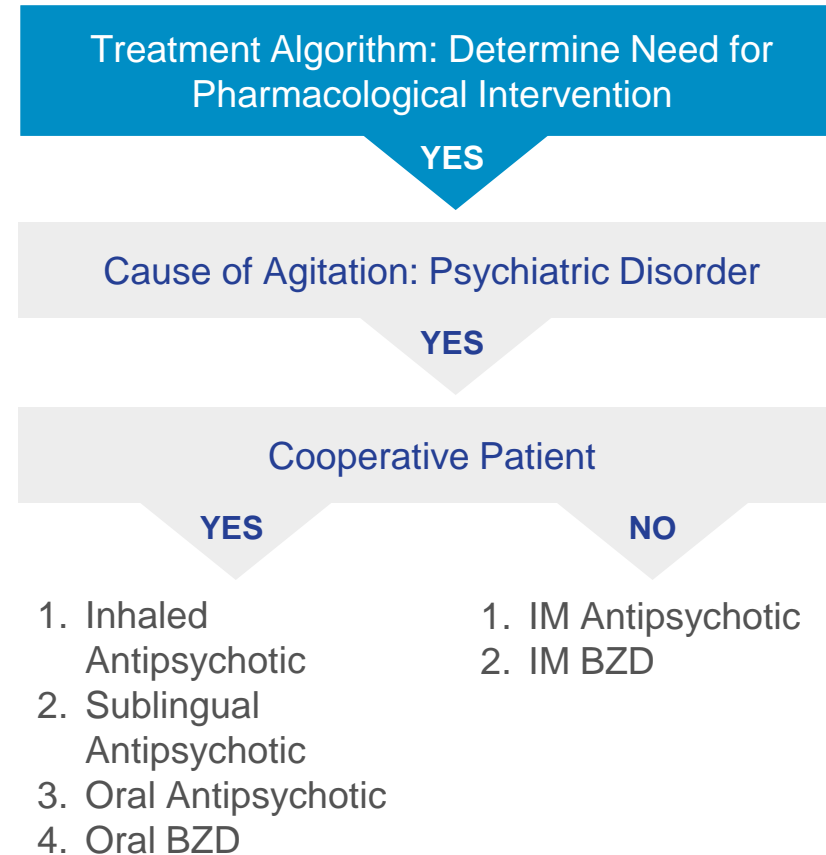
**10% to 31%** of all patients with schizophrenia or related psychotic disorders exhibit aggressive or violent behavior.

### AGITATION IN HOSPITALS ASSOCIATED WITH:



- Longer hospital stays
- Increased medication consumption
- Higher re-admission rates
- Increased number of violent incidents against staff, other patients, and themselves

# Current Treatment Paradigm for Psychomotor Agitation





# Current Treatment Paradigm for Psychomotor Agitation

## What are the Unmet Needs?

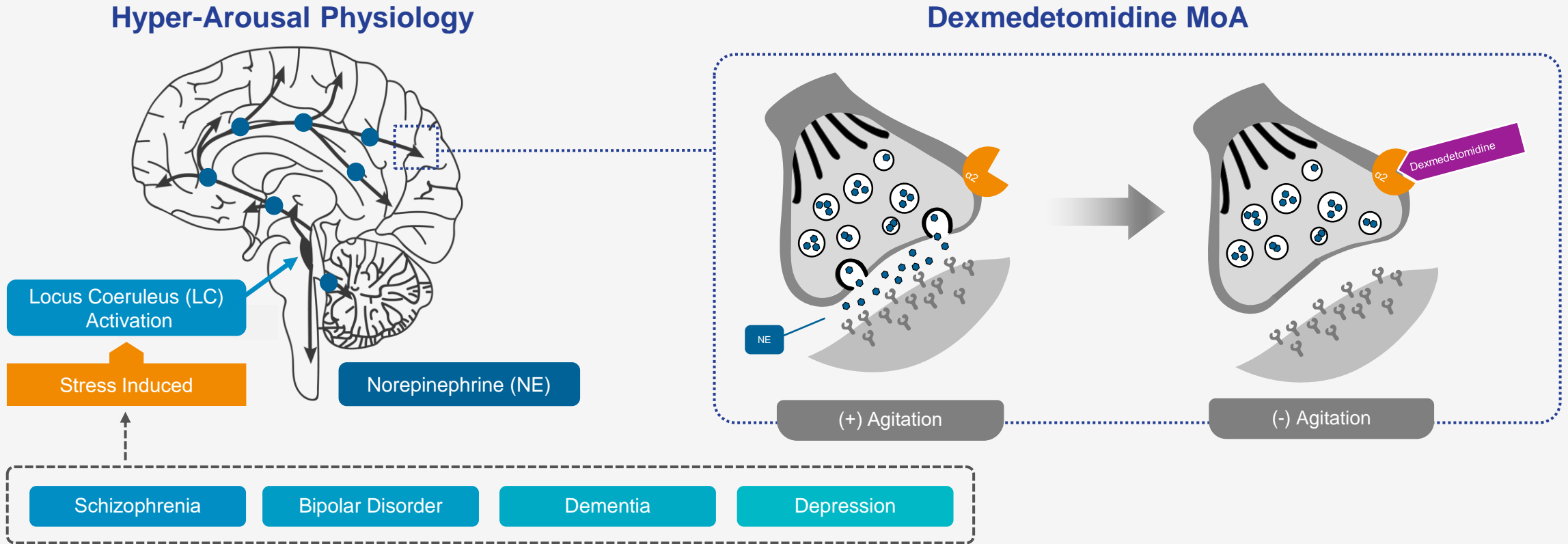
Characteristics of Drugs Commonly Used For Treatment of Psychomotor Agitation in Patients with Schizophrenia or Bipolar Disorder				
FACTOR	Oral BZD	Oral Antipsychotic	IM BZD	IM Antipsychotic
Calm without excessive sedation	NO	NO	NO	NO
Directly targets hyper-arousal mechanism of agitation	NO	NO	NO	NO
Non-invasive, non-traumatic route of administration	YES	YES	NO	NO
Rapid onset of action	NO	NO	YES	YES
Respiratory depression	YES	NO	YES	NO
Motor events	NO	YES	NO	YES

Martínez-Raga J, Amore M, DiSciascio G, et al. 1st International Experts' Meeting on Agitation: conclusions regarding the current and ideal management paradigm of agitation. *Front Psychiatry*. 2018;9:54. doi:10.3389/fpsy.2018.00054

Zeller SL, Citrome L. Managing agitation associated with schizophrenia and bipolar disorder in the emergency setting. *West J Emerg Med*. 2016; 17(2):165-172. doi:10.5811/westjem.2015.12.28763

# Mechanism of Action of IGALMI (Dexmedetomidine)

Dexmedetomidine has Been Shown to Reduce Hyper-arousal Through Selective Agonist Activity at Alpha-2A Adrenergic Receptors



Preskorn, SH: Journal of Psychiatric Practice. 28(3):227-233, May 2022  
Miller CWT, Hodzic V, Weintraub E. West J Emerg Med. 2020;21(4):841-848. doi:10.5811/westjem.2020.4.45779  
IGALMI [package insert]. New Haven, CT: BioXcel Therapeutics, Inc.; 2022.

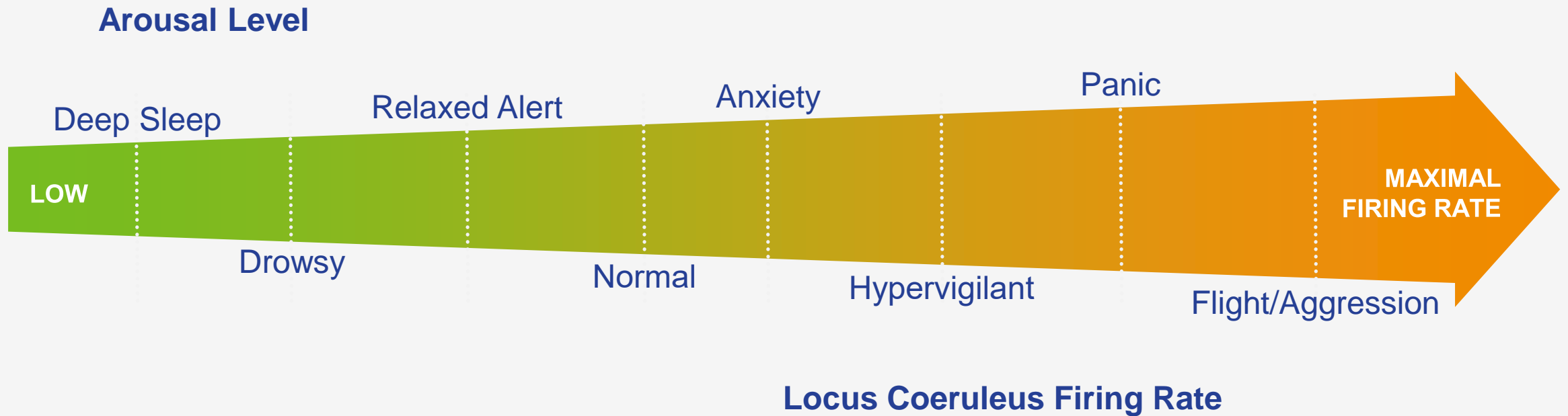
# Addressing Underlying Biology in Neuropsychiatric Symptoms

## Locus Coeruleus (LC) Neurons



- LC neurons fire in a phasic mode. When stressed, LC neurons fire in a tonic mode.
- Tonic firing causes anxiety-related behaviors
- Inhibition of noradrenaline (NA) release potentially reverses this firing pattern and restores phasic activity

# Levels of Arousal and Locus Coeruleus Activity



# DEXMEDETOMIDINE: Compared With Other Clinically Useful Alpha2 Adrenergic Agonists, has Highest Potency and Agonist Efficacy at Alpha-2 Receptors

DRUG	ALPHA-2A		ALPHA-2B		ALPHA-2C	
	EC <sub>50</sub> (nM)	% Max Activity	EC <sub>50</sub> (nM)	% Max Activity	EC <sub>50</sub> (nM)	% Max Activity
<b>DEXMEDETOMIDINE</b>	<b>3.9</b>	<b>89</b>	<b>2.8</b>	<b>147</b>	<b>14</b>	<b>110</b>
Clonidine	25	76	49	49	43	32
Guanfacine	69	78	2010	110	45	72
Lofexidine	17	40	43	97	23	50

# Further Differentiation Amongst Various Alpha-2 Adrenergic Agonists: Selectivity for Alpha-2 Adrenergic vs. I1-imidazoline Receptors

Radioligand binding properties at I1-imidazoline and  $\alpha$ 2-adrenergic receptors (Ki, nM)

Drug	1-Imidazoline (1-I)	Alpha2-adrenergic	alpha2/1-I
Clonidine	1	3.8	0.26
Lofexidine	1	6.9	0.14
Guanfacine	2500	2.3	1100
Medetomidine*	14600	2.7	5400

\*Racemate of dexmedetomidine

# Psychomotor Agitation in Adult Patients with Schizophrenia or Bipolar I or II Disease

## Patient Population for IGALMI

**Igalmi™**  
(dexmedetomidine)  
sublingual film · 120 mcg, 180 mcg



- Sublingual thin film formulation of dexmedetomidine
- Acts on the pathway of stress-induced agitation (sympathetic hyper-arousal)

### Goals of Therapy

- Increase cooperation of mildly agitated patients (shorten time in hospital)
- Prevent escalation of mild to moderate to severe agitation

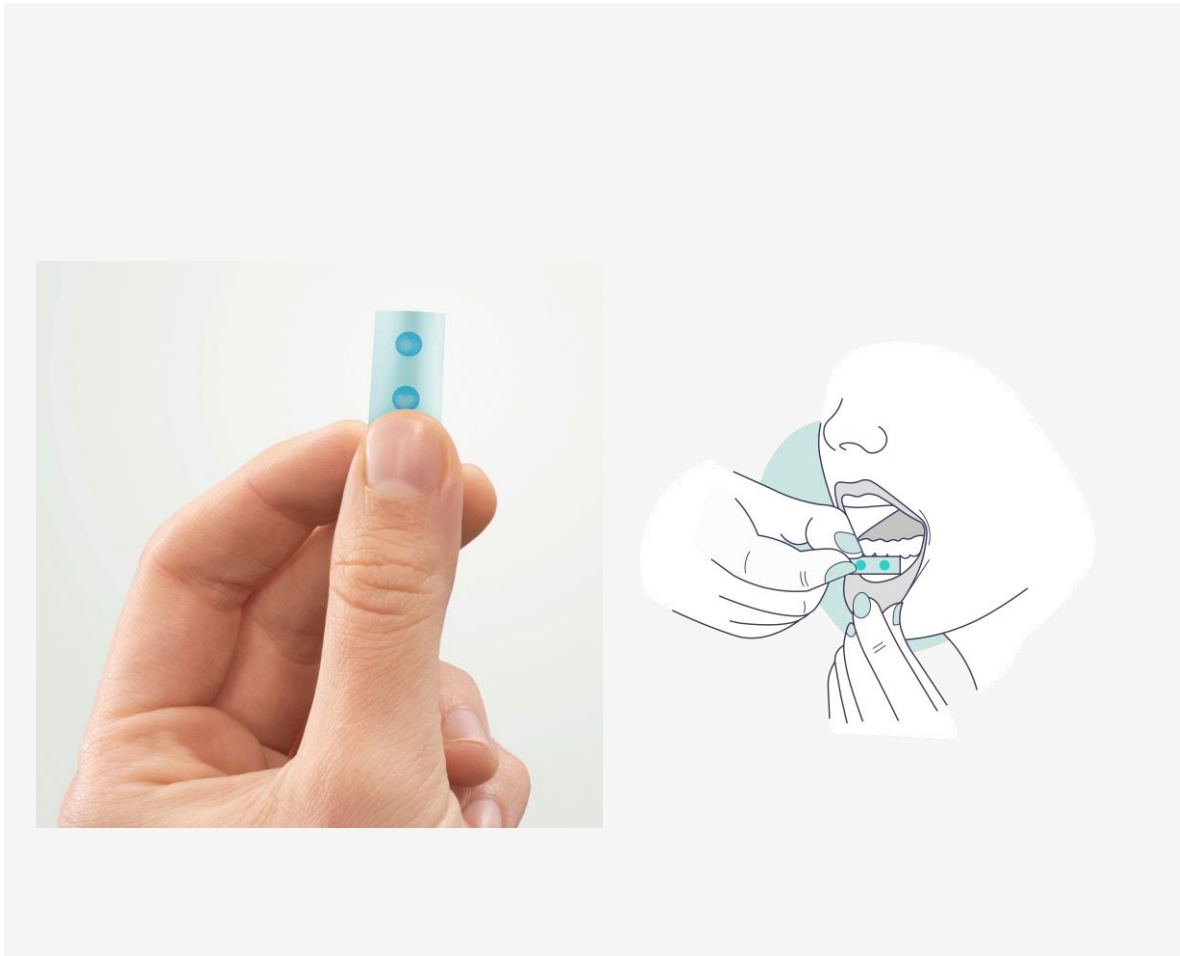
		Patient's Feelings	PEC Score
DEGREE OF AGITATION	<b>SEVERE</b>	<ul style="list-style-type: none"> <li>• Aggressive</li> <li>• Violent</li> <li>• Desperate</li> <li>• Confused</li> </ul>	31
	<b>MODERATE</b>	<ul style="list-style-type: none"> <li>• Insulting</li> <li>• Frightened</li> <li>• In danger</li> </ul>	19
	<b>MILD</b>	<ul style="list-style-type: none"> <li>• Nervous</li> <li>• Tense</li> <li>• Grumpy</li> <li>• Anxious</li> </ul>	13







# IGALMI: Easy-to-Administer Formulation



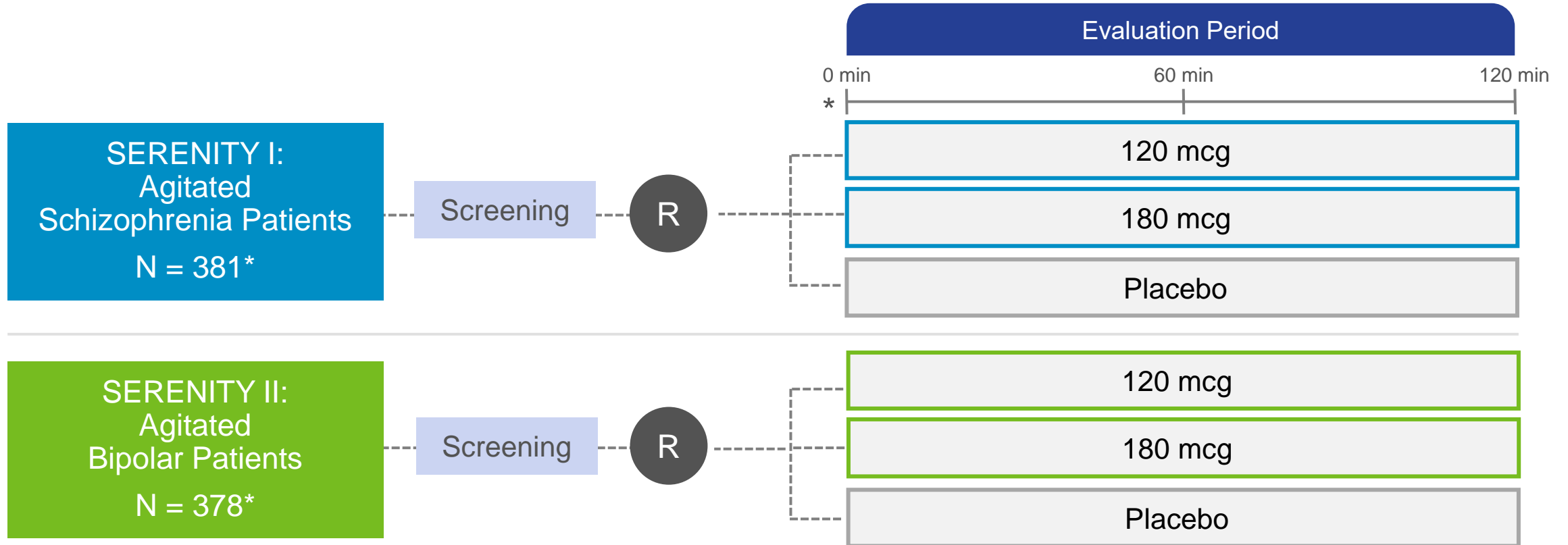
## Proprietary, Immediate Delivery, Sublingual Thin Film Product

- ✓ Muco-adhesion properties designed for optimizing compliance
- ✓ Adaptable technology enables broad dose range
- ✓ Flexible for potential combination of multiple drugs on a single film
- ✓ Absolute bioavailability; 72% sublingual, 82% buccal
- ✓  $T_{max} \sim 2$  hours;  $T_{1/2} = 2.8$  hours
- ✓ IGALMI should be administered under the supervision of a healthcare provider, who should monitor vital signs and alertness after administration

# Robust Treatment Effect Observed in Two Phase 3 Studies

- Highly statistically significant improvements in PEC score observed vs. placebo ( $p < 0.0001$ ) at two hours in the SERENITY trials for both doses tested
- Statistically significant improvements in PEC score observed as early as 20-30 minutes after treatment
- All exploratory endpoints showed reductions in agitation measures that were durable
- IGALMI was well tolerated with no serious adverse events reported in clinical studies

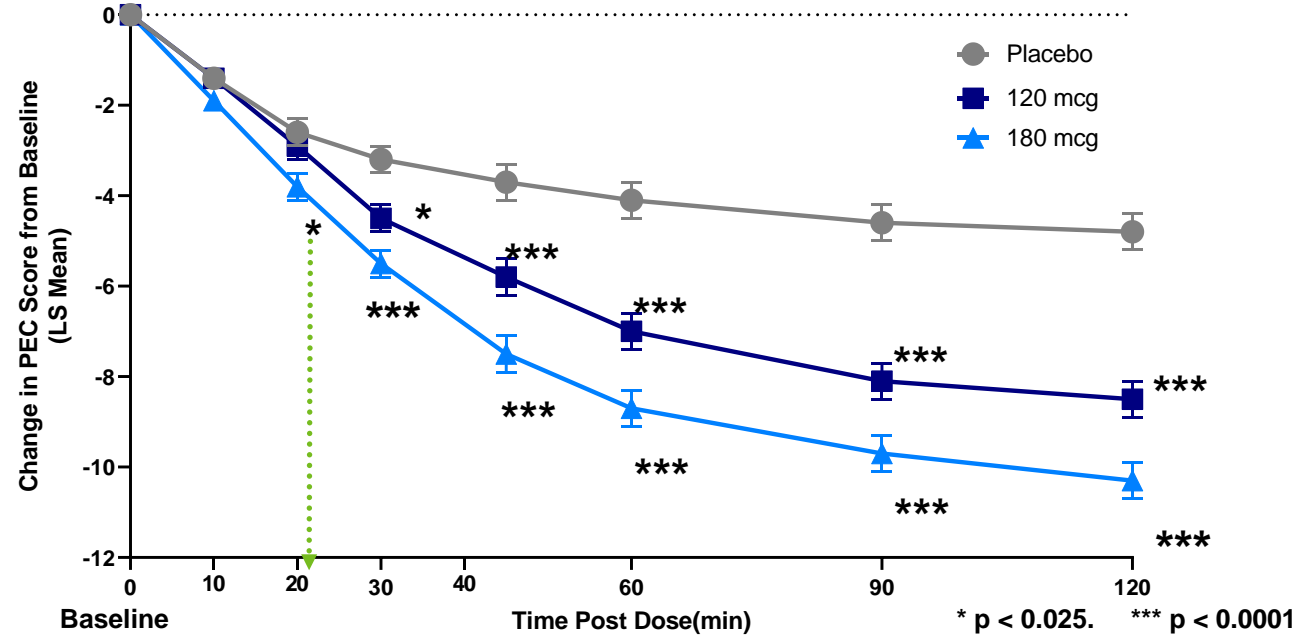
# SERENITY I & II: Two Pivotal Phase 3 Trials of IGALMI



\* Patients Dosed

**Primary Endpoint: Change from Baseline in PEC Score (PANSS-Excitatory Component) at 2 Hours**  
**Secondary Endpoint: Earliest Time Where an Effect on Agitation is Apparent**

# SERENITY I: Rapid Onset of Action Observed



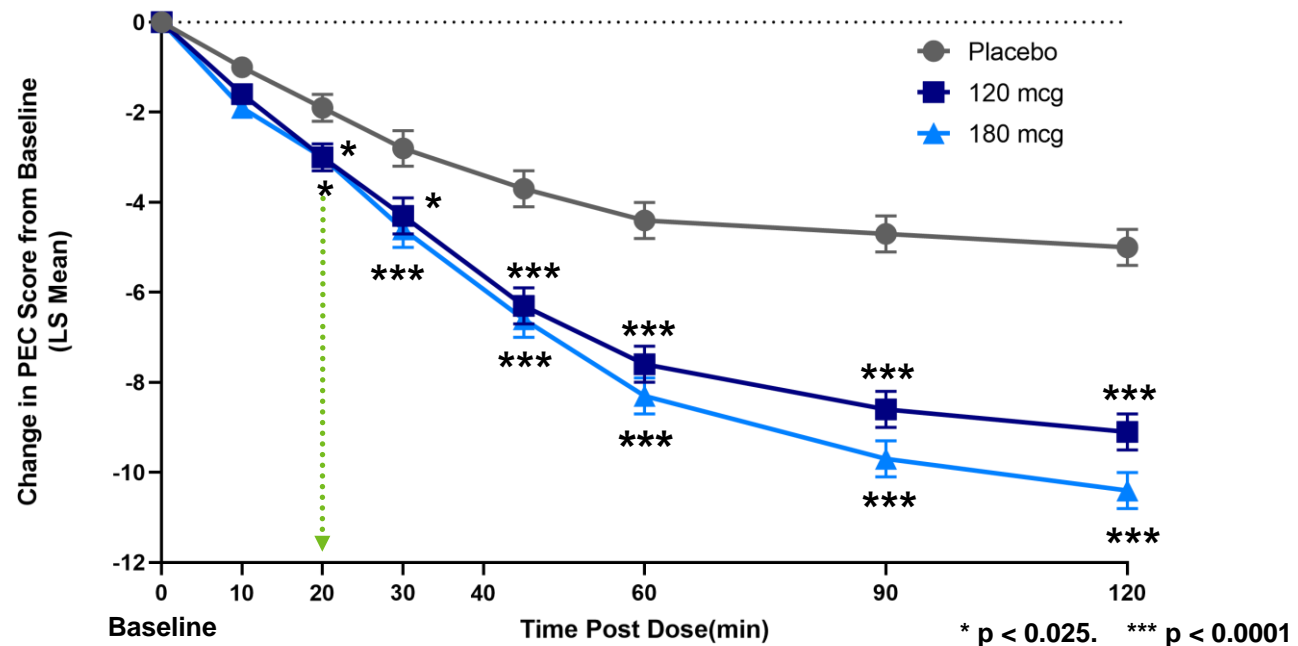
## Primary Endpoint at 120 min

Endpoint (120 min)	Placebo	120 mcg	180 mcg
PEC Total score Change from Baseline	-4.8	-8.5 ***	-10.3 ***
Response <sup>°</sup>	34%	67%	87%

ITT analysis, Least Square Means +/- SEM analysis, should be interpreted with caution

<sup>°</sup> Proportion achieving ≥ 40% PEC reduction; pre-specified exploratory analysis, should be interpreted with caution

# SERENITY II: Rapid Onset of Action Observed

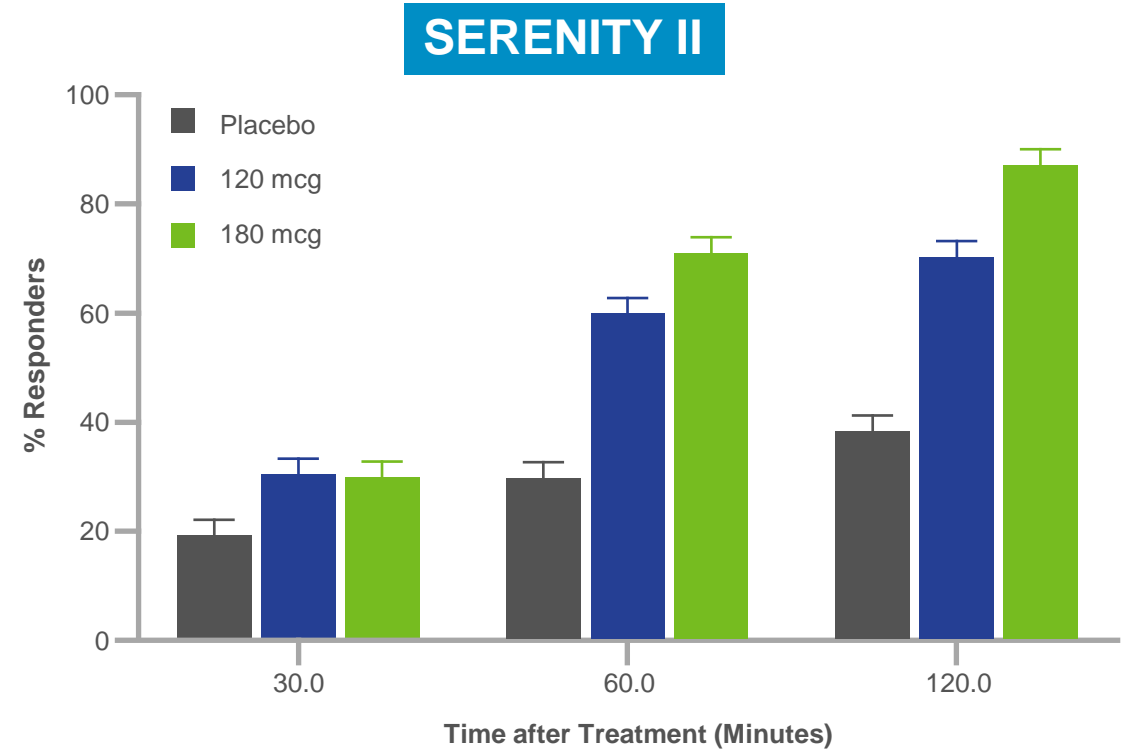
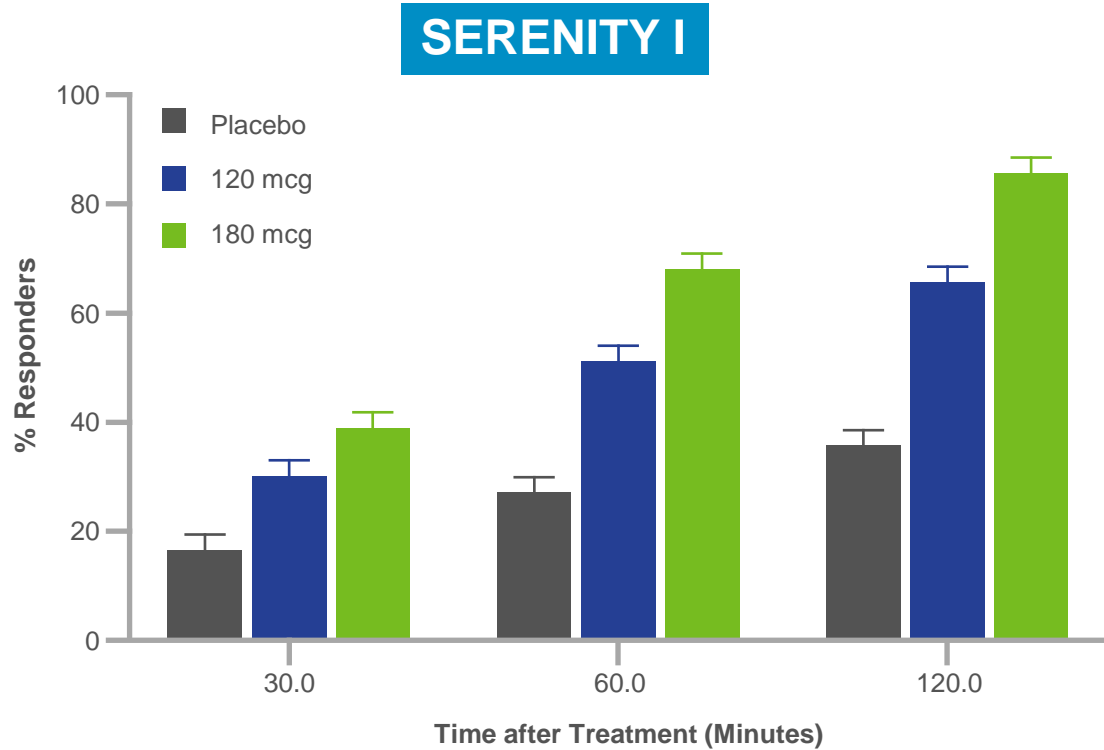


**Time = 120 min  
(Primary  
Endpoint)**

Endpoint (120 min)	Placebo	120 mcg	180 mcg
Primary: PEC total score change from Baseline	-5.0	-9.1 ***	-10.4 ***
Response <sup>o</sup>	37%	69%	85%

ITT analysis, Least Square Means +/-SEM analysis, should be interpreted with caution <sup>o</sup> Proportion achieving ≥ 40% PEC reduction; pre-specified exploratory analysis, should be interpreted with caution

# Clinically Meaningful Improvement Confirmed by CGI-I



**Response Was Defined as “Very Much Improved” or “Much Improved” as Recorded by Study Investigators**

The Clinical Global Impression scale – Improvement (CGI-I) is a 7-point scale.  
 ITT analysis; pre-specified exploratory analysis, should be interpreted with caution

Preskorn SH, Zeller S, Citrome L, et al. *JAMA*. 2022;327(8):727–736  
 Citrome L, Preskorn SH, Lauriello J, et al. *J Clin Psychiatry*. 2022 Oct 3;83(6):22

# IGALMI Was Well Tolerated with no Serious Adverse Events Reported in Clinical Studies

## Integrated Safety Data From the two SERENITY Trials

		180 mcg BXCL501 (N=252)	120 mcg BXCL501 (N=255)	Placebo (N=252)
Somnolence	Mild	40 (15.9)	43 (16.9)	15 (6.0)
	Moderate	16 (6.3)	11 (4.3)	1 (0.4)
Dizziness	Mild	13 (5.2)	7 (2.7)	2 (0.8)
	Moderate	2 (0.8)	3 (1.2)	0
Hypotension	Mild	10 (4.0)	10 (3.9)	0
	Moderate	3 (1.2)	4 (1.6)	0
Orthostatic hypotension	Mild	9 (3.6)	7 (2.7)	1 (0.4)
	Moderate	4 (1.6)	0	0
Hypoaesthesia oral		12 (4.8)	7 (2.7)	1 (0.4)
Dry mouth		11 (4.4)	19 (7.5)	3 (1.2)
Nausea		7 (2.8)	6 (2.4)	4 (1.6)
Headache		6 (2.4)	12 (4.7)	12 (4.8)
Paraesthesia oral		6 (2.4)	7 (2.7)	1 (0.4)

*All subjects self-administered the sublingual film under the supervision of a healthcare professional to monitor vital signs and alertness to prevent falls and syncope.*

Treatment Emergent Adverse Events (TEAEs) with >2% incidence rate in one or more treatment groups are included, sorted by decreasing frequency in the order of 180 ug BXCL501, 120 ug BXCL501, Placebo. Subjects counted once at highest severity within each term based on MedDRA (Medical Dictionary for Regulatory Activities) version 23.0



# IGALMI: Sublingual Thin Film Dexmedetomidine for Acute Treatment of Agitation in Adult Patients with Schizophrenia or Bipolar I or II Disorder

Agitation: A Growing Global Healthcare Issue (\$40B+)



# The Front Lines of Agitation

Karen Sands, MSN, APRN-BC,  
ANP, CCRN, FCCM

Speaker is acting on behalf of and is a paid consultant to BioXcel Therapeutics, Inc.  
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# 34 Years of Nursing Experience

## Career Highlights

Critical Care RN



1988 - 1993

Critical Care Educator



1993 - 2000

Critical Care NP



2000 - 2020

Hospitalist NP



2020 - present

# Patient Presentation & Treatment Plan

Rapid Assessment & Diagnosis Needed



**Fluctuation or  
change in mental  
status**



**Inattention**

- Disorganized thinking
- Altered level of consciousness



**PLAN – Determine  
the cause**

- Psychiatric illness
  - Bipolar disorder
  - Schizophrenia
- Medical illness



# Transitioning an Agitated Lion to a Calm Kitten!



- Stabilize
- De-escalation
- Rapid Treatment



# Treatment Selection Considerations

## Team Alliance & Needs

- **Team Needs**
  - **Nursing:** calm, cooperative, and comfort
  - **Pharmacy:** clinical pharmacokinetics and cost
  - **Physician/Advance Practice Provider:** assessable, stable, and transferable
- **Ideal Agitation Treatment Characteristics**
  - Easy to administer
  - Rapid onset of action
  - Effective and predictable dose response
  - Few adverse side effects
  - Lack of drug accumulation
  - Minimal adverse interactions with other drugs
  - Cost effective
  - Supports spontaneous respiration



# Lessons Learned Over 3 Decades



- **Avoid Oversedation & Respiratory Depression That Causes:**
  - Hypoxia
  - Aspiration
  - Leads to endotracheal intubation



- **Absolute Goals:**
  - Support respiratory effort and avoid need for adjunctive airway support
  - Maintain hemodynamic stability
  - Maintain functional status on discharge equivalent to baseline



- **Current use of Dexmedetomidine**

# Managing Agitation

## Challenges and Patient Clinical Factors



### Goals & Considerations

- Hospital Length of Stay can be impacted by drug selection, dosing, and treatments
- Treating While Avoiding Over-sedation:
  - Relieve anxiety and agitation
  - Improve compliance with care
  - Optimize safety
  - Facilitate communication with caregivers and family members
  - Avoid or reduce delirium
  - Minimal side effects



### Patient Variables Impacting Treatment

- Memory loss
- Confusion
- Medications
- Sleep Deprivation
- Mechanical Devices
- Loss of Control
- Constantly Changing Environment



# Autonomic Hyperactivity Resulting From Catecholamine Release During Stress

## Symptoms



- Tachycardia
- Hypertension
- Diaphoresis
- Tremors
- Hallucinations
- Agitation
- Delusions

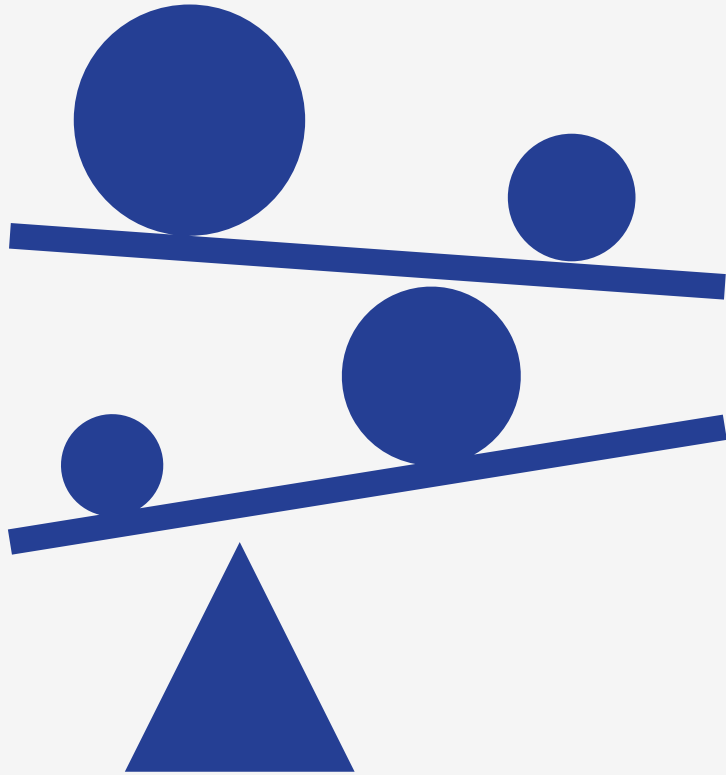
## Agitation Symptom Management



- Challenging
- Requires frequent and close monitoring with increased level of care
- Extreme resources spent to prevent complications and death

# The Balancing Act – Treatment Challenges & Outcomes

Impact of Treatment Oversedation vs. Ideal Patient Comfort



## Negative Treatment & Oversedation Impact:

- Increased ICU, ED & Hospital Length of Stay:
  - Increased direct medical care & staffing costs
- Increased risk of complications:
  - Thromboembolic events
  - Healthcare-assisted pneumonia
- Need for additional diagnostic testing
- Increased ventilator use
- Increased risk of death
- Increased patient and staff injuries during treatment

# Agitation Treatment Challenges in the ED

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# Patient Medical Complexities Presenting to the ED



- **Cardiac Event:** Hypertensive Crisis or Myocardial Infarction
- Neurological Event
- Abdominal Catastrophe
- Endocrine Emergency
- Respiratory Failure due to Pneumonia or Viral Illness
- **Polysubstance Self-Medication Abuse:** Tobacco, vaping, alcohol, marijuana, crack cocaine, opiates (oral and IV), methamphetamine
- Medical Noncompliance

# ED Challenges

## Limitations & Staff Burnout Affecting Patient Care

### Logistics Pressures:

- Lack of bed availability at a crisis level
- Staffing shortages limits optimal patient care
- Inadequate monitoring/telemetry beds
- Agitated patient held in ED vs. general floor

*“When will my patient be admitted to a room?”*



### Physician Burnout by Specialty (2021 Survey):

Top 4 Reporting Burnout by %

- Emergency Medicine: **60%**
- Critical Care: **56%**
- Obstetrics and Gynecology: **53%**
- Infectious Disease: **51%**

### Physician Assistant Burnout (2021 Survey):

Top 4 Reporting Burnout by %

- Critical Medicine: **38%**
- Emergency Medicine: **37%**
- Oncology: **35%**
- Hospital Medicine: **34%**

# Case Studies: Safety Risks & Staff Injuries

## Safety Risks From Escalation to Physical Aggression

**Injuries:** Staff & patients

### Restraints:

- 10% of patients with schizophrenia and bipolar disorder require confinement and restraints
- Requires enhanced staff, monitoring, and documentation
- Need for security at bedside



### Nurse 1

- Patient pulled nurse's arm

### Nurse 2

- Patient took fist and beat the back of nurse's neck
- Permanent injury and out on worker's compensation

### Nurse 3

- Patient bit nurse on the arm
- Human bite is as serious as animal bite
  - Lab test costs
  - Time off work

# IGALMI™ – Medication Characteristics Desired by ED Staff

Rapid Response Team Option for the Agitated Adult Patient with Schizophrenia or Bipolar I or II Disorder

## Ideal Agitation Treatment Characteristics

- ✓ Easy to administer
- ✓ 20-minute onset of action
- ✓ Effective
- ✓ Known safety profile
- ✓ Doesn't suppress respiration

## Additional Staffing Needs

- Provider education on IGALMI and appropriate patient selection
- Broad hospital staff education on de-escalation techniques
- Staff education on benefits of IGALMI use



# Hospital Process: How the System Works

Jacob Hanaie  
PharmD, APh, BCPP

Speaker is acting on behalf of and is a paid consultant to BioXcel Therapeutics, Inc.

This material is intended for an investor audience only.

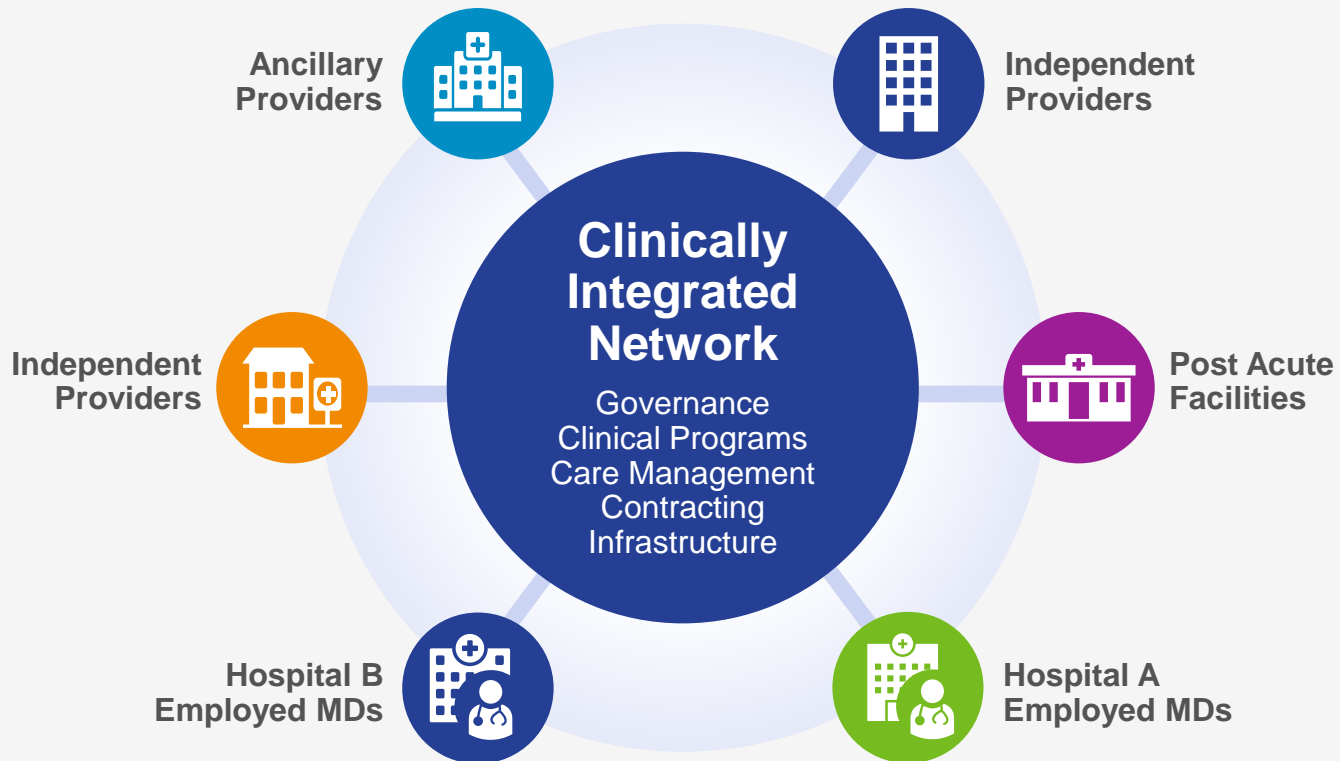
The information contained in the following material is intended to provide background and educational information only and does not constitute medical advice. Individual results will vary among patients and depend on many factors. A patient's healthcare provider should consider the circumstances of each patient.





# Complex Institutional Structures & Functions

## Practice Groups and Hospital Networks



### Non-integrated Group Practices & Hospitals Multi-specialty Group Practices

### Accountability Care Organizations (ACOs)

- Groups of doctors, hospitals, and other healthcare providers who come together voluntarily to give coordinated high-quality care to patients

### Integrated Delivery Networks (IDNs)

- Health systems that aim to integrate healthcare organizations to consolidate missions and clinical operations
- **Examples:**
  - New York Presbyterian Healthcare System – NY
  - Yale New Haven Health System, New Haven, CT
  - Henry Ford Health System – Detroit, MI

### Fully Integrated Delivery & Financing Systems

- **Example:** Kaiser

# Complex Institutional Structures & Functions

## Purchasing Groups

### Group Purchasing Organizations (GPOs)

- Entities created to leverage purchasing power of a group of businesses to obtain vendor discounts based on collective buying power of GPO members
- Funded by administrative fees paid by vendors
- Examples:
  - Vizient
  - Premier
  - Health Trust



What's one thing these all have in common, regarding medication use policies?

# Pharmacy and Therapeutics (P&T) Committee: Overview



- Meets regularly to **review newly available drug therapies**
- **Stays abreast of developments** in pharmacy market
- **Manages the formulary**
- Involved in **quality/cost initiatives**

# Broad Functional Responsibilities

## Policies & Procedures Develops, Reviews & Manages:

- Medication usage, ensuring safe and effective drug utilization
- Compliance with local, state, and federal laws and regulations
- Promoting cost-effective drug therapies
- Overseeing pharma-related relationships
- Treatment guidelines

## Reviews, Develops, Oversees & Approves:

- Drug-related educational programs
- Drug-related staff trainings and orientations



## Analyzes, Studies & Reports:

- Pharmacoeconomic studies / cost analysis
- Drug procurement
- Wholesaler contracting
- Advises Quality Assurance Department/committees
- Advises Infection Control Committee
- Reports and advises Medical Staff Committee
- Reviews scientific publications

# Performance Improvement Focus Areas



## PRESCRIBING

- Pharmacist interventions
- Incomplete orders
- PRN orders
- Patient demographics
- Non-formulary orders
- Experimental drug orders
- Verbal/telephone orders



## DISPENSING

- Medication distribution/dispensing
- After-hour medication dispensing
- Dispensing error reporting
- Pyxis dispensing
- Compounded dispensing
- Medication cassette fill



## ADMINISTRATION

- PRN (as needed) administration
- STAT/NOW (Immediate) order administration
- Administration timeliness
- Med-pass audits
- Pyxis reconciliation reports
- Medication administration record reconciliation



## MONITORING

- Medication errors
- Food-drug interactions
- Drug-drug interactions
- Adverse drug reactions
- Black box warning medications
- Medical care evaluations
- Drug use evaluation
- Therapeutic drug monitoring

# Broad Additional Responsibilities

- Review and redevelop drug monograph
- Coordinate drug recalls
- Develop & revise treatment guidelines
- Member of Medication-assisted Treatment (MAT) Committee
- Communicate with Therapeutic Assessment Committee (TAC)
- Communicate with Value Assessment Committee (VAC)
- Participate in cross-department and hospital-wide studies
- Oversee insurance coverage and prior authorizations

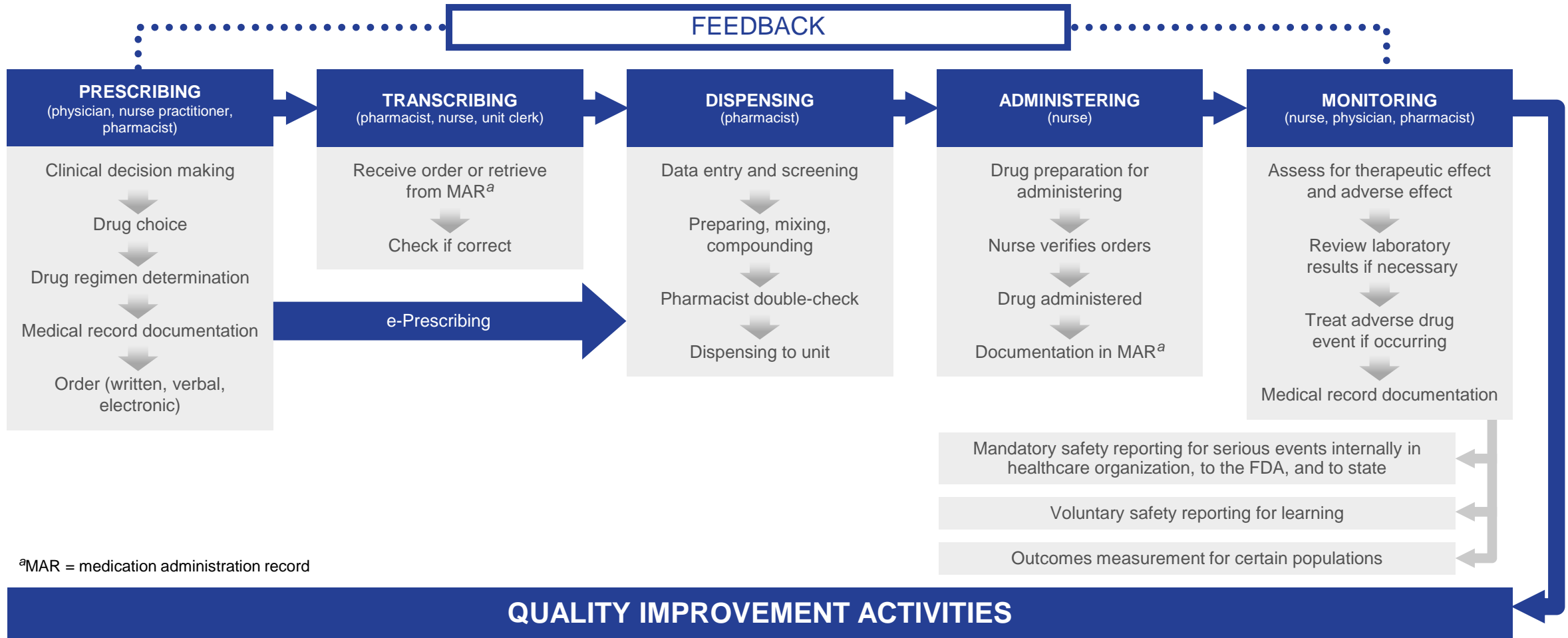


# Formulary Medication Management

- New medications (~50 per year)
- Indication expansions
- Changes to package inserts
- Recalled meds (~1,300 per year)
- Compounding medication review
- Experimental drug usage
- Clinical trial studies



# Continuous Feedback & Quality Improvement Process



Any of these steps can affect treatment guidelines



# New Drug Formulary Process

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# Formulary Process: The Request Form

## KEDREN ACUTE PSYCHIATRIC HOSPITAL Formulary Request Form

The policies of the Medical Staff's P&T Committee require that this form be completed (including appropriate signatures) before a non-formulary drug may be purchased/dispensed or added to the formulary by the Pharmacy Department. All formulary addition requests are reviewed by the P&T Committee. Drugs that are newly approved by the FDA are automatically given a non-formulary status. Please note that the formulary review will generally be conducted at the P&T Committee 1-3 months following the submission of this form.

Date: \_\_\_\_\_ Provider's Name: \_\_\_\_\_ Requested Medication: \_\_\_\_\_

Strength(s): \_\_\_\_\_ Formulation (PO, IM, etc): \_\_\_\_\_ Intended Use: \_\_\_\_\_ Cost: \_\_\_\_\_

Are there similar products on the formulary? \_\_\_\_\_ If yes, please list them and the therapeutic advantage(s) of the requested drug over these formulary drugs currently used for similar conditions:

**Select an option below, complete the box following your selection. Once completed send to the Pharmacy.**

**1. ONE TIME REQUEST TO USE NON-FORMULARY DRUG FOR A SPECIFIC PATIENT**

Patient Name: \_\_\_\_\_ DOB: \_\_\_\_\_ Unit: \_\_\_\_\_

Diagnosis: \_\_\_\_\_ Approximate duration of treatment: \_\_\_\_\_

Reason(s) why a formulary drug is not suitable for this patient: \_\_\_\_\_

**2. REQUEST TO ADD A DRUG TO THE HOSPITAL FORMULARY**

Will it be used off-label? \_\_\_\_\_ If yes, explain: \_\_\_\_\_

List any safety issues that need to be considered relative to this drug: \_\_\_\_\_

Should new drug replace a current formulary item? \_\_\_\_\_ If yes, please list: \_\_\_\_\_

Reason for request [discuss advantages of requested drug vs existing (ex: efficacy, cost, side effects, etc)]: \_\_\_\_\_

### FOR PHARMACY USE:

Date/Time Received: \_\_\_\_\_ Response: \_\_\_\_\_

**Approval Signatures (1 Signature needed for "One Time Request", 2 Signatures for "Addition to Formulary"): Director of Pharmacy must always be one of the signers:**

Director of Pharmacy \_\_\_\_\_ P&T Chair \_\_\_\_\_ Medical Director \_\_\_\_\_

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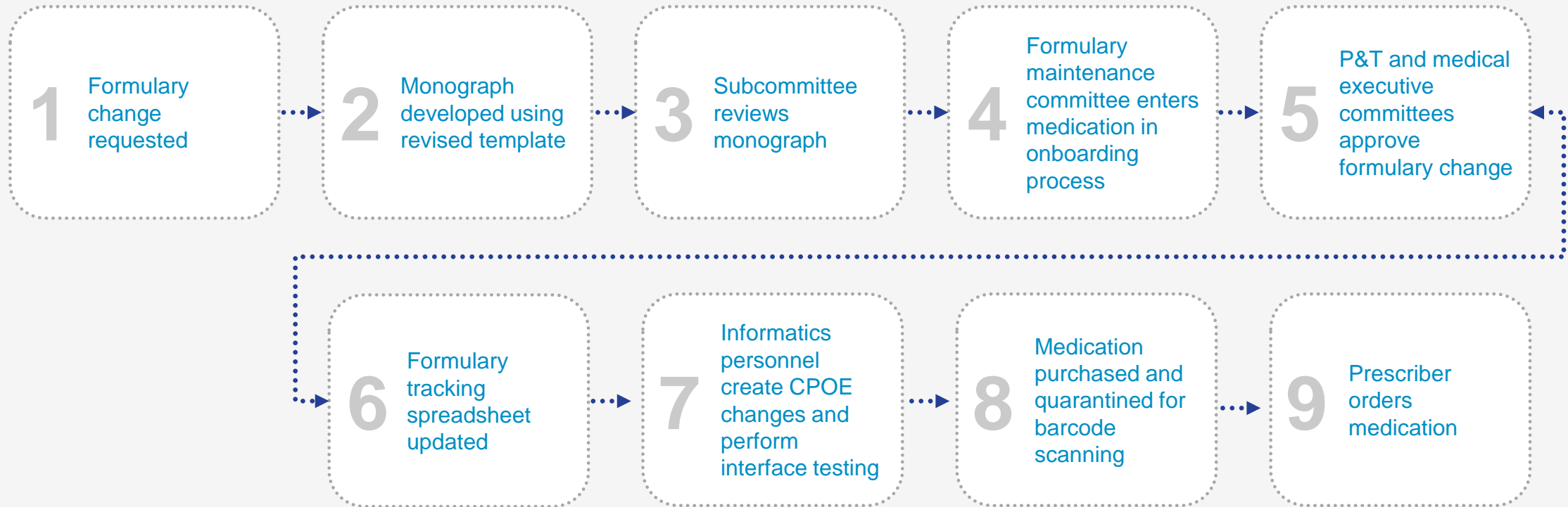
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# From Formulary Change Request to Medication Orders

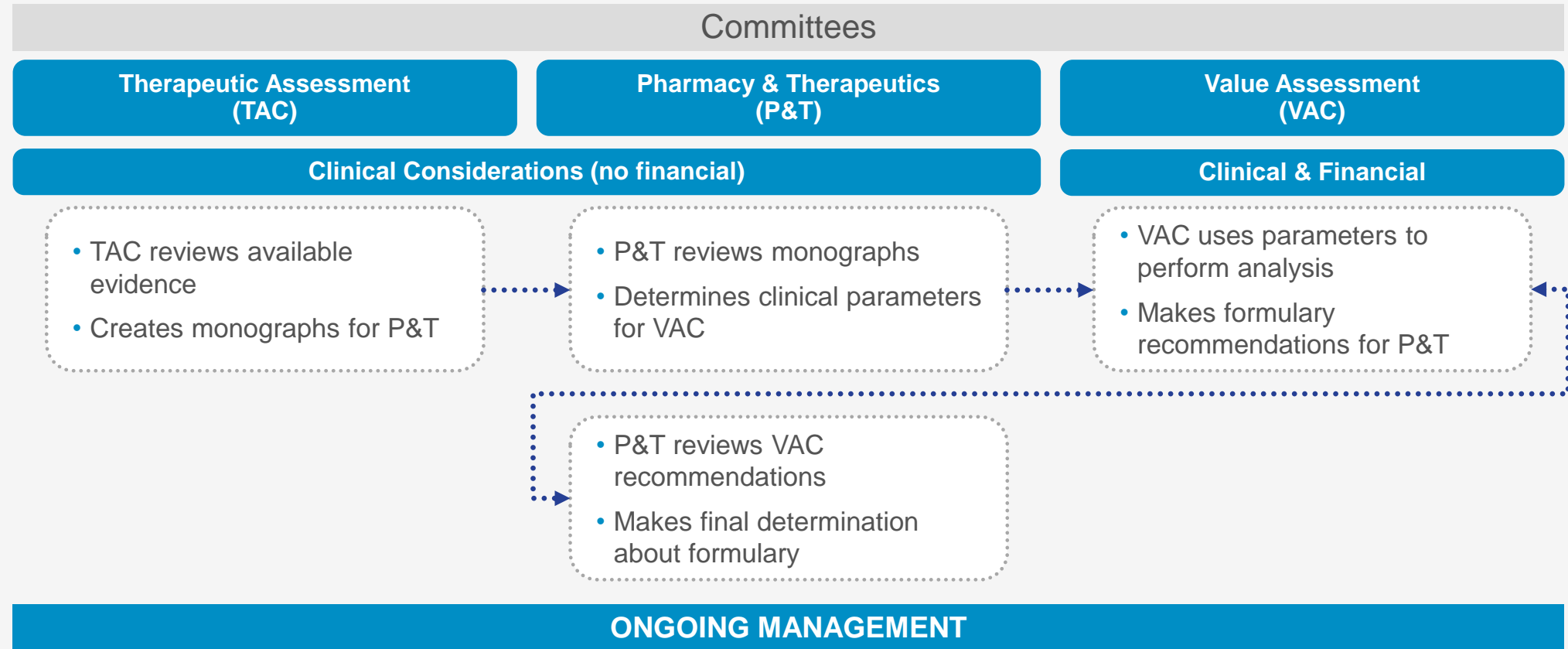
## 9-Step Process



# Multiple Committee Perspectives

## Clinical & Financial Considerations

### Formulary Development Process



# COVID-19 Impact on P&T Committee

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# P&T Committee in Post-COVID-19 Environment



Might meet quarterly  
*(might not)*



Might meet in person  
*(might not)*



Might have ALL committee members  
*(might not)*



Extended time discussing COVID, Monkey Pox, infection control, etc.



Budgets have changed and/or shifted



Priorities have changed and/or shifted



Relationship with pharma has changed



Each Country,

Each State,

Each County,

Each City, and

**EACH & EVERY Hospital System is different.**

**YOU CANNOT KNOW ONE AND KNOW ALL**

# IGALMI™ Commercial Overview and Updates

Matt Wiley  
Chief Commercial Officer





# Positive Commercial Momentum in Under 4 Months

Well-positioned to Maximize IGALMI™ Market Potential



- **Positive market reception** from key hospital stakeholders
- Highly favorable **market dynamics** to IGALMI™ value proposition
- **Gaining market access** across multiple institutions
- **Expanding national sales team** to cover ~1700 hospitals in 70 geographies

# The Trauma of Agitation: One Patient's Perspective

## Patient Background

### Bipolar Disorder

- Diagnosed >5 years ago
- 33-year-old female

### Agitation Symptoms

- Multiple times per month

### Care Summary

- ~35 ED/urgent care visits per year
- Has required inpatient care due to agitation episodes twice in the past 2 years

# The Trauma of Agitation: One Patient's Perspective

“ I feel like there is no end to the agitation when it's happening. It's very frustrating because not only do I feel out of place mentally, but I also have physical feelings of nervousness. With the agitation, I get kind of tics where I pick at myself, or I'm trembling and I can't stop, or I'm shaking my leg or my foot. I just feel like it's both physical and emotional, and it's hard to control both at the same time. ”

*–Anonymous Bipolar Patient*



# The Evolving Agitation Market

---



# Agitation in Bipolar and Schizophrenia Represents \$4B Market Opportunity



  
**Igalmi**<sup>™</sup>  
 (dexmedetomidine)  
 sublingual film • 120 mcg, 180 mcg

SERENITY III Pivotal Trial

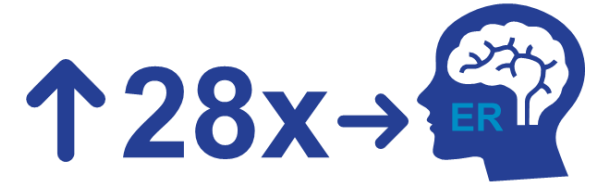
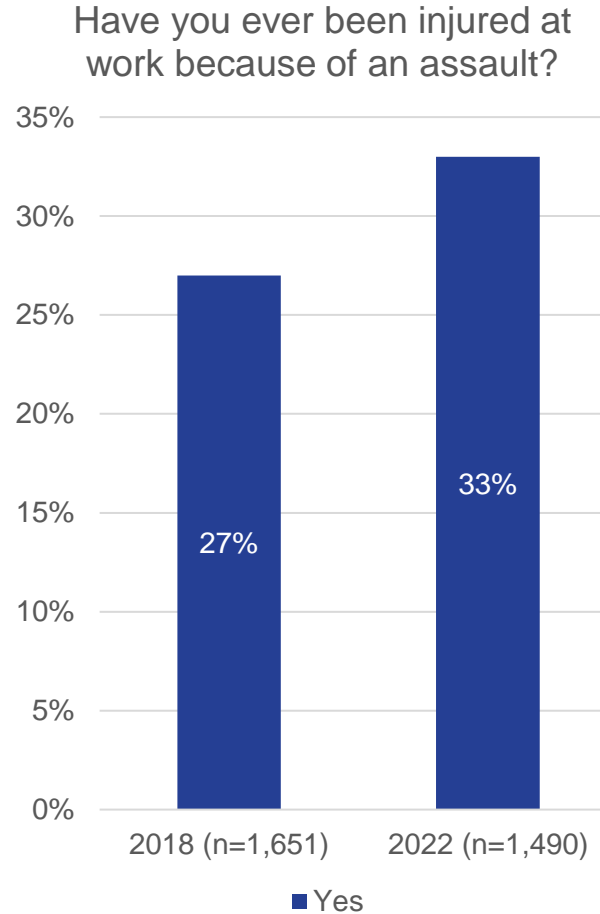
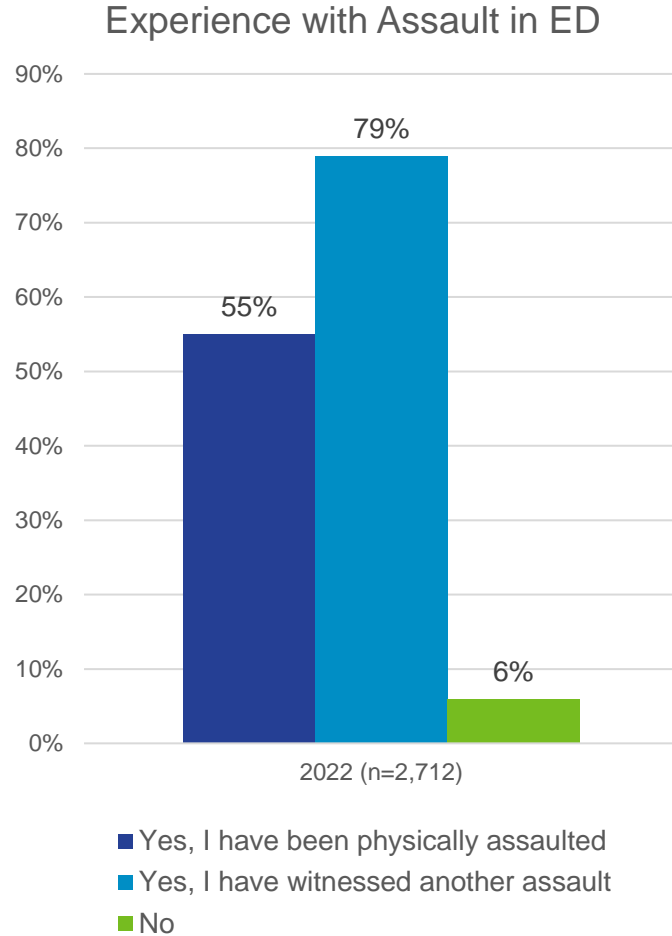
\*Investigational use; safety and efficacy not established

1. Wu, 2006, NAMI 2. NIMH- Prevalence of bipolar disorder in adults. November 2017. Accessed June 24, 2021. [https://www.hcp.med.harvard.edu/ncs/ftpd/ncs-R\\_12-month\\_Prevalence\\_Estimates.pdf](https://www.hcp.med.harvard.edu/ncs/ftpd/ncs-R_12-month_Prevalence_Estimates.pdf) 3. Data on File 4. inVibe Patient Agitation Market Research, July 2022 (n=57) 5. Estimate based on 39M episodes @ \$105/episode



# 55% of Physicians Surveyed in ACEP Poll\* Have Been Assaulted

## Assault-related Injuries on the Rise

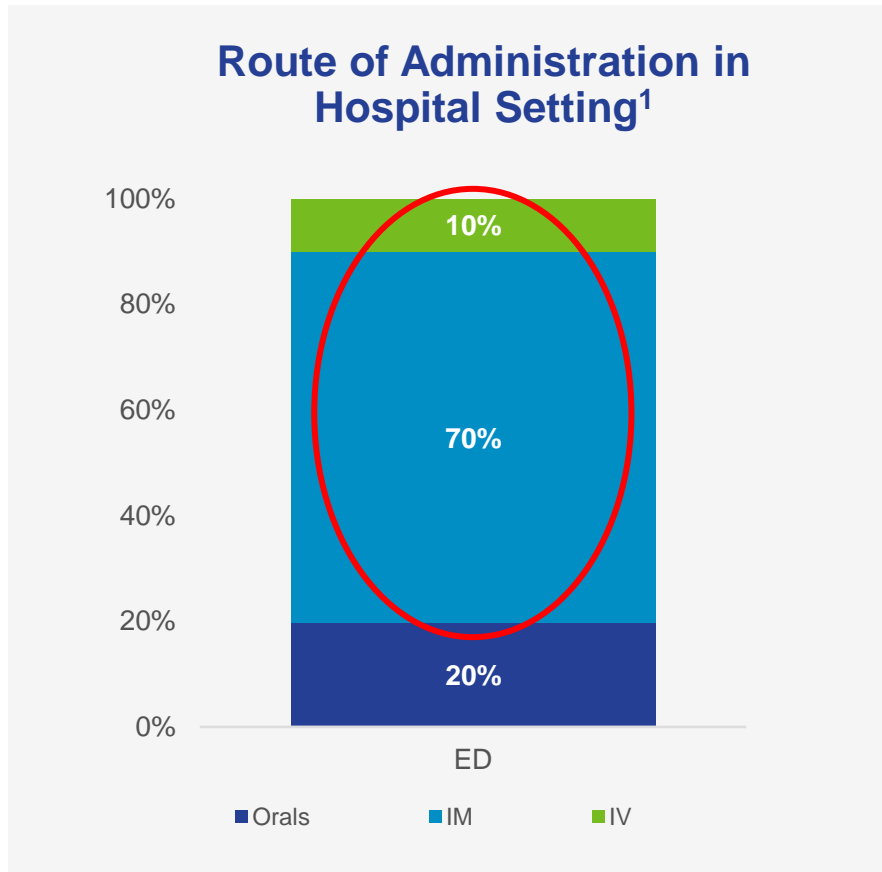


Increase in odds of assault by patient with diagnosis of schizophrenia, schizoaffective, or bipolar disorder with manic symptoms in psychiatry emergency room

\*Source: American College of Emergency Physicians Emergency Department of Violence Poll Results, 2022. Lawrence RE, et al. J Am Acad Psychiatry Law. 2020; 48(44)8:484-495.

# 80% of Patients Administered Invasive Treatments for Agitation

## Coercive Approach may Escalate Agitation



**Patients acknowledge their agitation often escalates while in emergency-care setting<sup>2</sup>**

*Needle phobic, invasive approach, don't like being touched, "feel like I'm being euthanized," perceptions of being a "guinea pig"*

**Patients and caregivers alike report many negative emotions associated with physical or chemical restraint**

<sup>1</sup> Huron Market Landscape 2020 BXCL 501 – Key Insight Generation MR Findings (February 2021),

<sup>2</sup> BXCL501 Positioning Study Patients & Caregivers Final Report (April 2021)



# Commercial Infrastructure & Progress

---



# Fully Integrated and Experienced Commercial Team

Designed to Meet Today's Needs and Future Demands

## MARKETING

Driving Market Awareness and Interest

## MARKET ACCESS

Navigating stakeholder contracting & oversight

## SALES

Driving hospital demand and pull-through



## ANALYTICS/OPERATIONS

Delivering key insights and enabling productivity

## TRAINING

Optimizing commercial skillsets

## DISTRIBUTION

Ensuring steady, consistent national supply

# Impactful Marketing Messages and Value Proposition

IGALMI™: First and Only Sublingual Film for Acute Treatment of Agitation Associated with Schizophrenia or Bipolar I or II Disorders<sup>1</sup>

Core Message	HCP Benefit
IGALMI reduces norepinephrine release, a key mediator of agitation <sup>1</sup>	Novel mechanism approved for treating agitation
Significantly reduced agitation beginning as early as 20 minutes <sup>1</sup>	Ability to reduce agitation in reasonable and desirous timeframe in non-invasive option
The effects of IGALMI were studied across a spectrum of agitation severity <sup>1</sup>	80 to 90% of all patients responded to treatment at 2 hours
Proven safety profile in clinical trials <sup>1</sup>	No serious treatment-related adverse reactions were seen in clinical trials

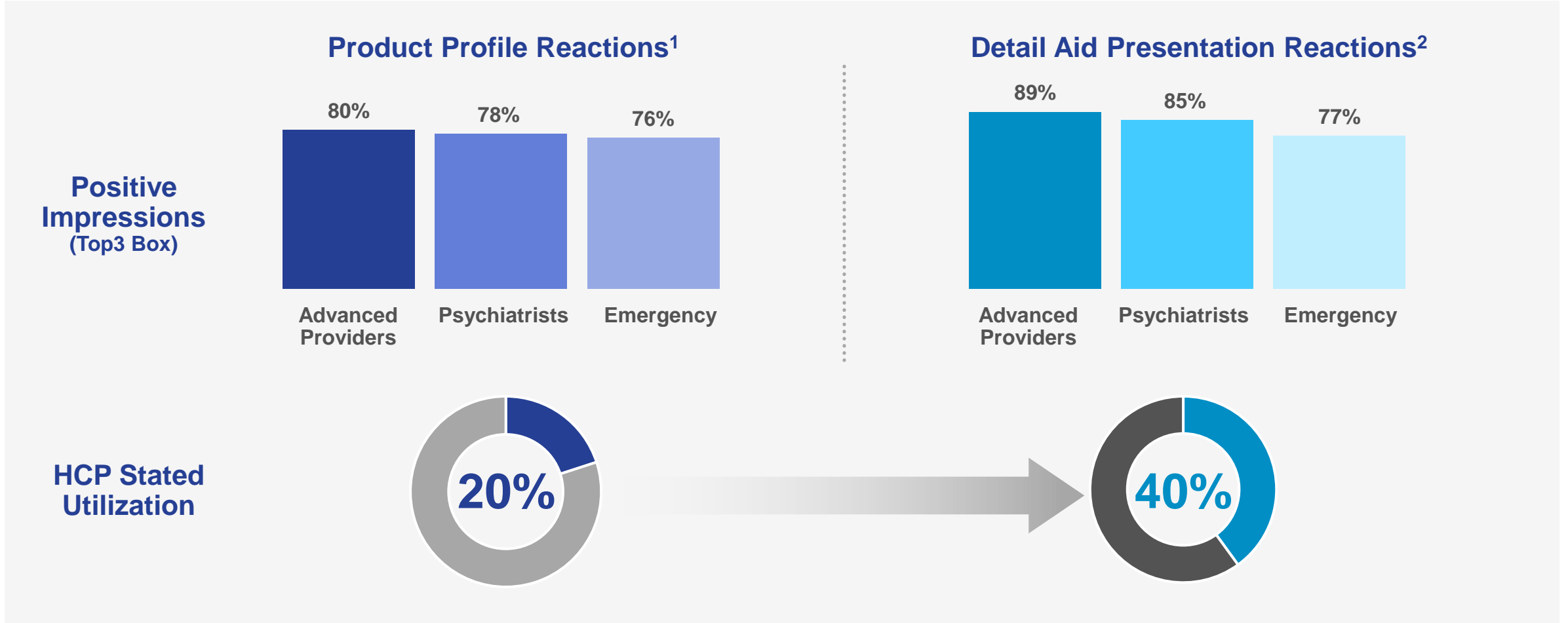
Limitations of Use: The safety and effectiveness of IGALMI have not been established beyond 24 hours from the first dose.  
See Important Safety Information on slide 3

HCP=healthcare professional.

\*Approximately 80-90% of patients who received IGALMI vs. ~40-46% of patients who received placebo were considered PEC responders (achieving ≥40% reduction in total PEC) at 2 hours.

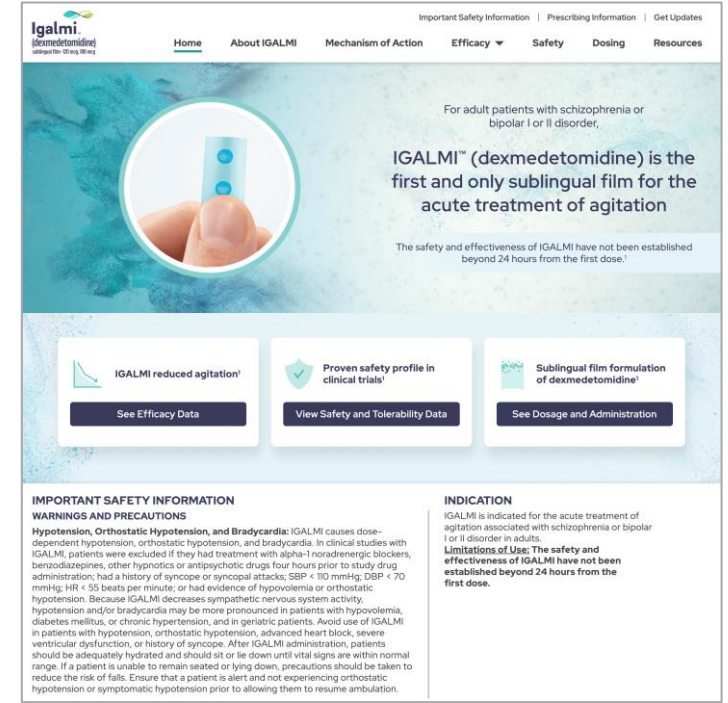
1. IGALMI [package insert]. New Haven, CT: BioXcel Therapeutics, Inc.; 2022. 2. Data on file. BXCL501-301 CSR (SERENITY I). BioXcel Therapeutics, Inc.; January 2021. 3. Preskorn SH, et al. *JAMA*. 2022;327(8):727-736.

# Stated Utilization of IGALMI™ Doubles When Provided Within Context of Promotional Messaging



1. HCP ATU Landscape Research, January 2022  
2. HCP Quantitative VisAid Testing, December 2021

# Marketing Efforts are Reaching Providers Through Peer Programs, Conventions, and Digital Media



# Market Access

---



# High-priority Focus on Key Stakeholder Groups to Generate Access



## GPOs

- Group purchasing organizations (GPOs) contract with manufacturers on hospitals' behalf and provide pass-through discounts



## IDNs

- Integrated delivery networks (IDNs) are a network of providers that deliver coordinated and integrated care within a geographic area

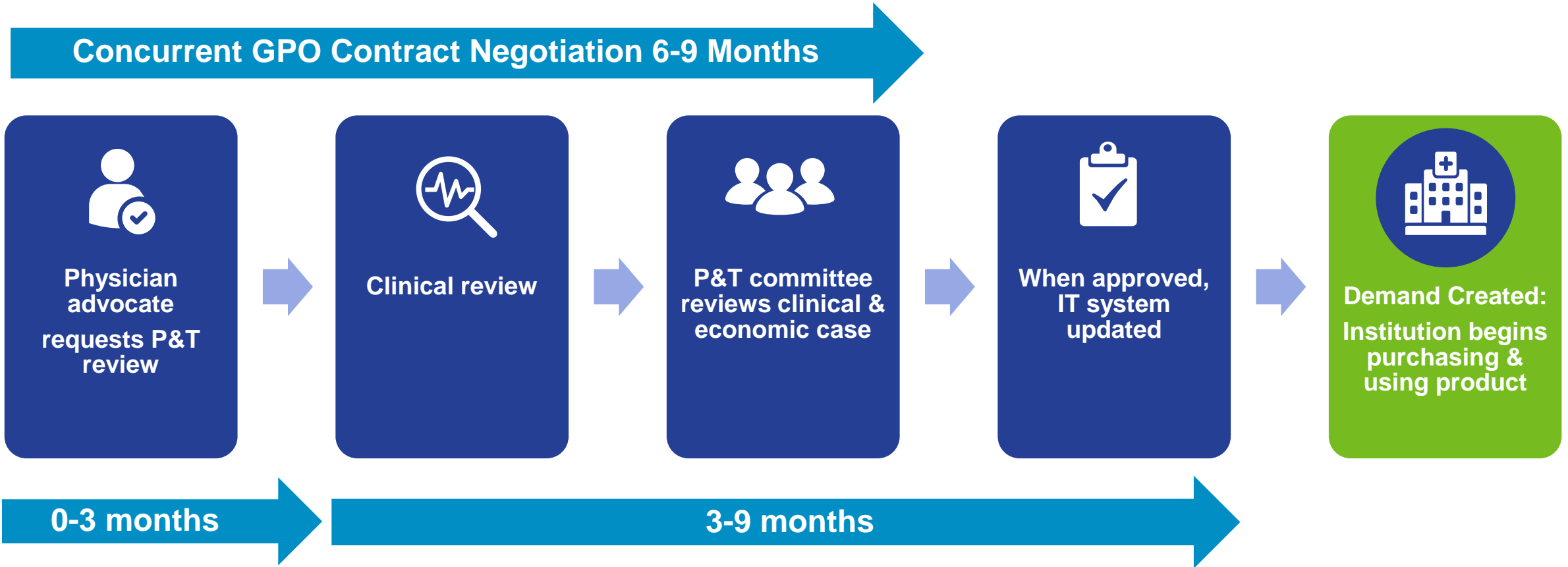


## HCOs

- Healthcare organizations (hospitals) have their own Pharmacy and Therapeutics (P&T) committee and access barriers

# Working to Gain Hospital Formulary Access and Drive Demand

## Navigating Contracting and P&T Process

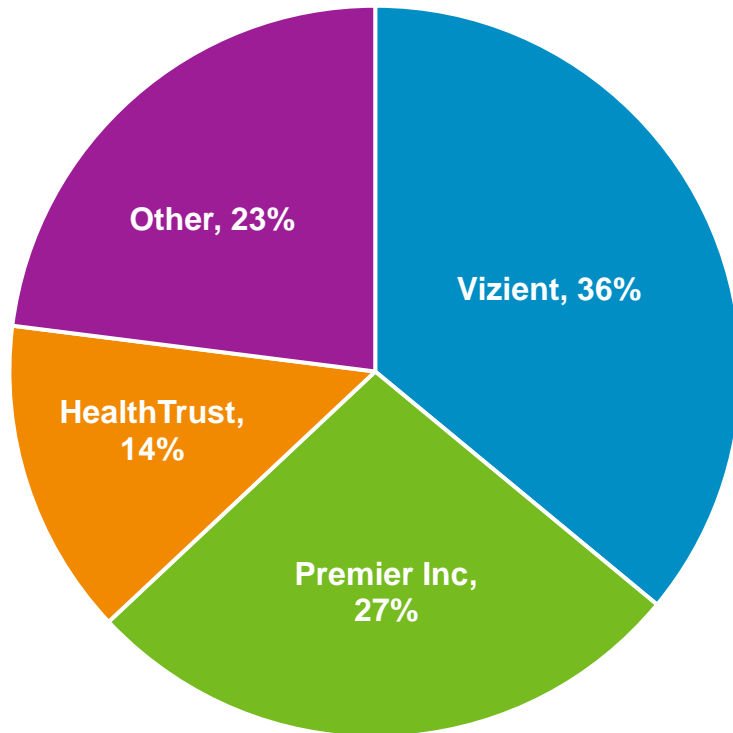




# IGALMI™ Now Contracted with Nearly Half of Targeted U.S. Hospital Beds

Top 3 GPOs Influence 77% of Staffed Beds in the U.S. and >90% of IGALMI Target Beds

Bed Volume by GPO

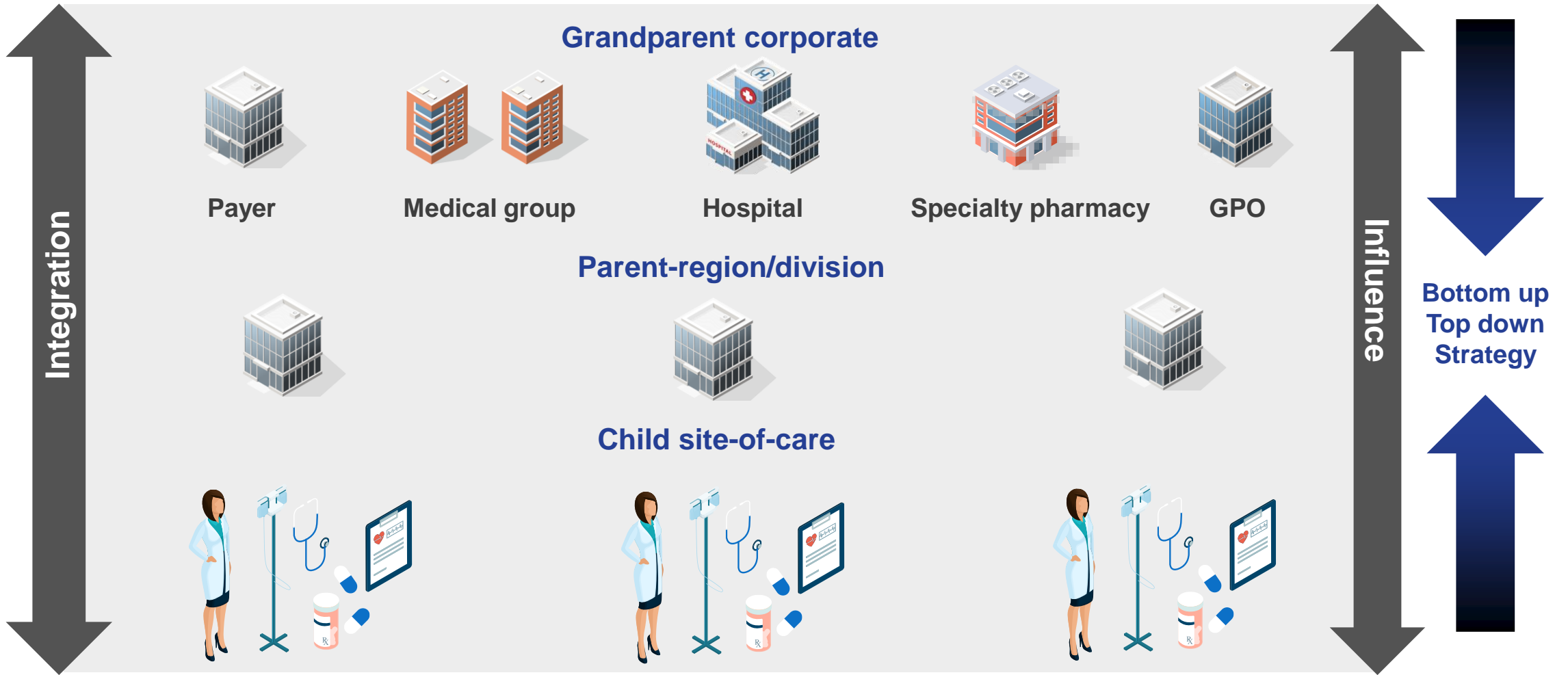


## GPO Contracting Process

- Vizient contract executed and effective October 1, 2022
- ~46% of all target hospital beds now covered
- Other GPOs in advanced stages of engagement

# Corporate IDNs Have Varying Degrees of Control and Influence

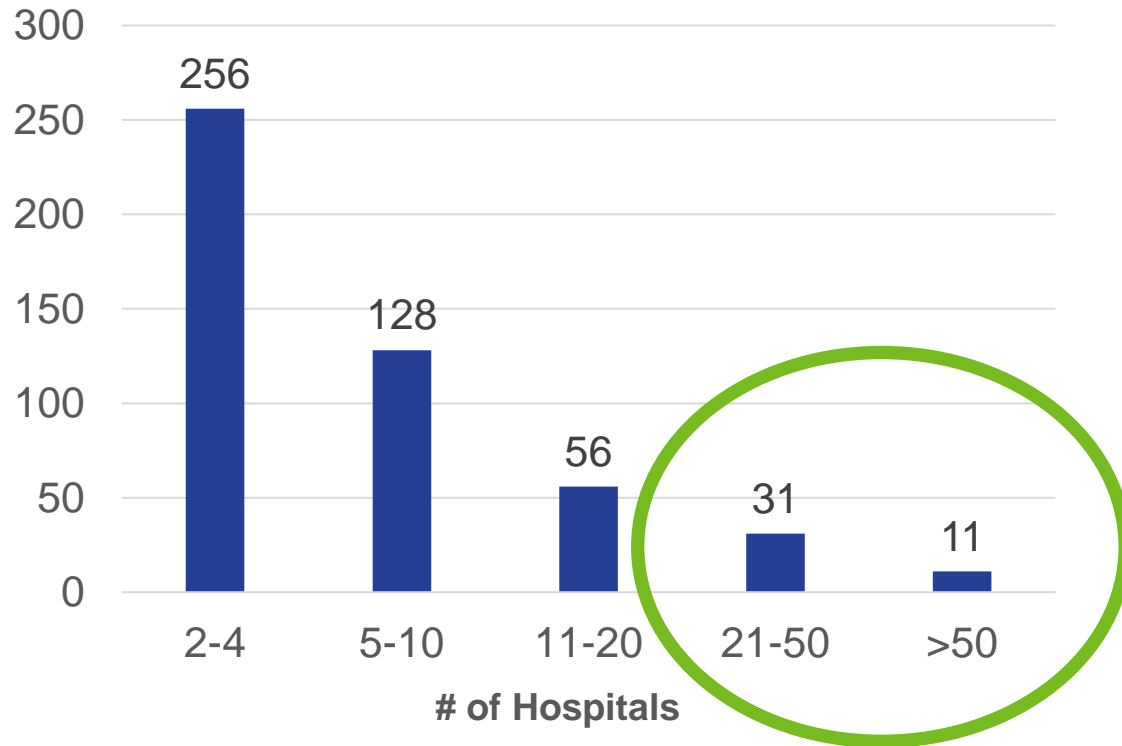
Key Focus for Corporate Account Directors



# ~10% of IDNs Control Majority of IDN-affiliated Hospitals in U.S.

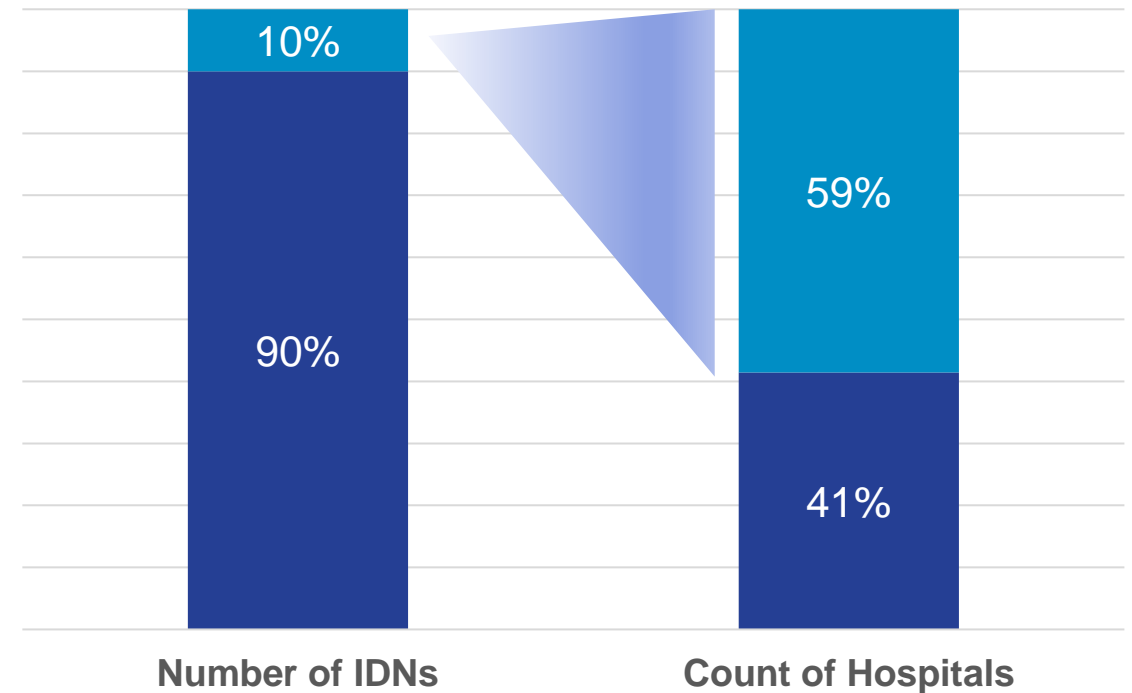
## Core Execution Focus

### Most IDNs are Small and Regional



### Distributions of IDNs by # of Hospitals

*Top 10% of IDNs control ~60% of IDN affiliated Hospitals*



# 59 IDNs Represent One-Third of Target Hospital Beds

## Can Affect Protocols and Pathways in Additional Network Hospitals



- ★ Large High controlling IDNs (Priority)
- ☆ Large High controlling IDNs (Tier 2 Targets)

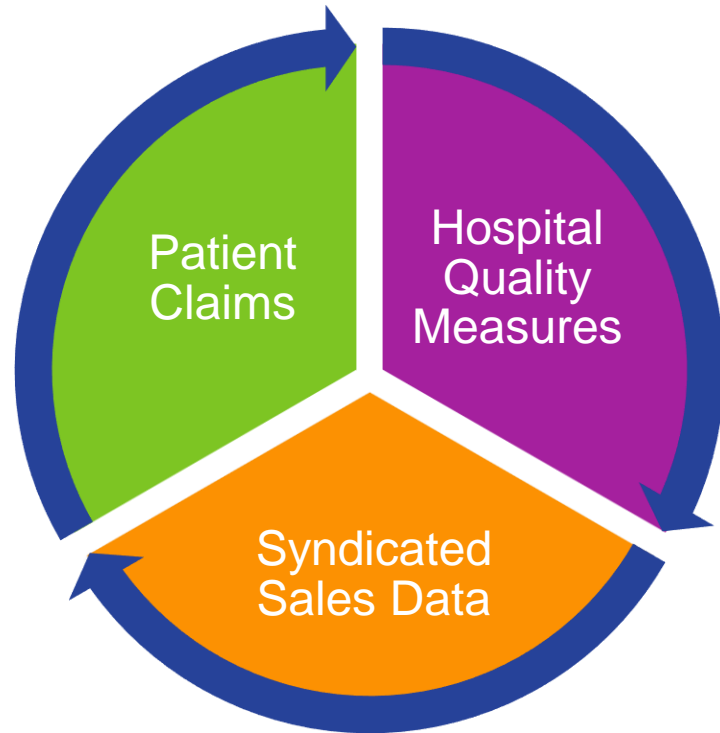
### Corporate Account Team Focus

- Corporate Account Director (CAD) Team deployed to engage with target IDNs in 3Q
- Coordination between sales and CAD team designed to drive interest and adoption of these systems
- Key Metrics:
  - 33% of all targeted beds
  - 37% of all targeted agitation episodes
  - 38% of all targeted agitation patients

# Unique Precision Targeting Using 81B Record Data Lake

## Refined Priorities for Sales Force Expansion

Factors include hospital beds, antipsychotic utilization, agitation episodes, repeat patient visits, among others



### Key Targeting Metrics

- ~1700 priority target hospitals
  - Represents majority of bipolar or schizophrenia agitation episodes and patient volume
  - Represents ~80% of total psych beds

# Sales Force Deployment and Field Intelligence

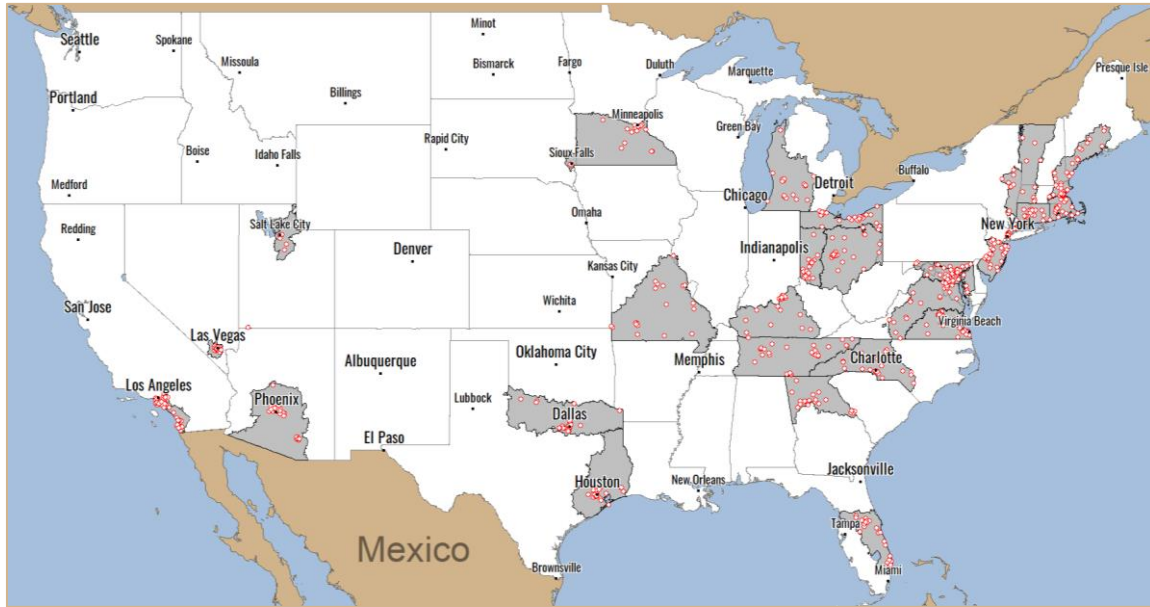
Brenden Schulek  
Vice President, Sales



# Field Force Expansion Nearing Completion; Plan to Mobilize Sales Efforts Against ~1,700 Target HCOs

Representing ~70% of Commercial Opportunity; Covers all Major U.S. Population Centers

Wave One Target Coverage: 37%  
2022



Wave Two Target Coverage: 100%  
2023



# Institutional Specialists Have In-depth Hospital Experience & Expertise

Averaging 8 Commercial Launches Each

**22 year average**

experience in pharma/biotech sales



**14.5 year average**

experience in hospital sales

**250+**

product launches

**8+**

per representative



**8.5 year average**

selling in emergency setting



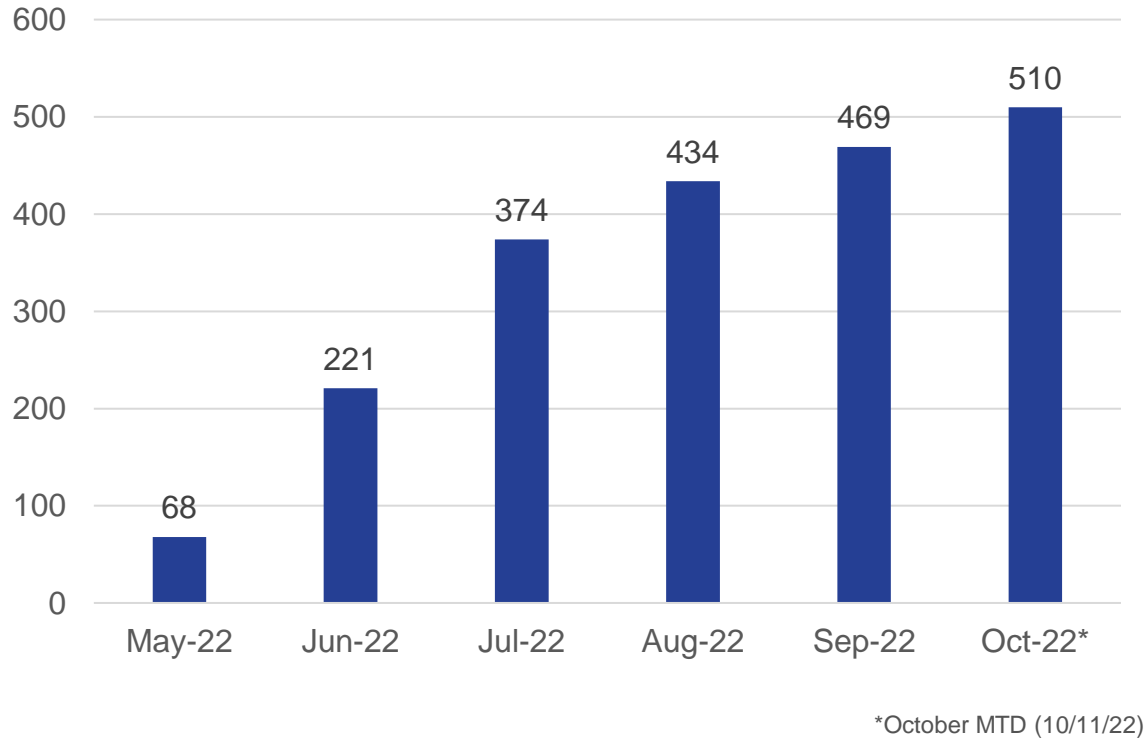
**6.5 year average**

selling in **CNS market**



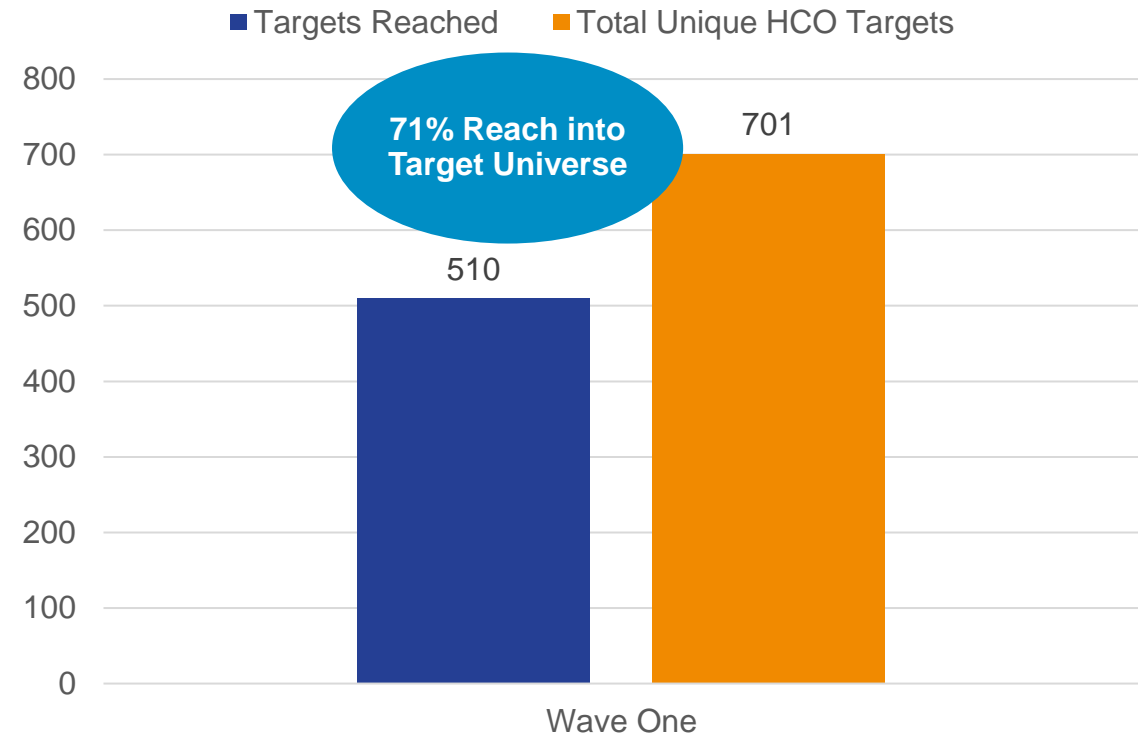
# First Wave Sales Team has Penetrated Two-Thirds of Target Universe and Continues to Expand Reach

## Cumulative Unique Target Hospital Reach



## Target Hospital Reach to Date

Target account depth/penetration has doubled in the last 2 months



## Providers are Enthusiastic About IGALMI™

**“I could have used this today!”**

– RN Response after ED Inservice - Large Community Hospital

**“I’m a psychiatrist and my mom is a schizophrenic. She has PTSD from years of force and injections. I can’t wait to get this.”**

– Psych MD, Hospital and Office Practice



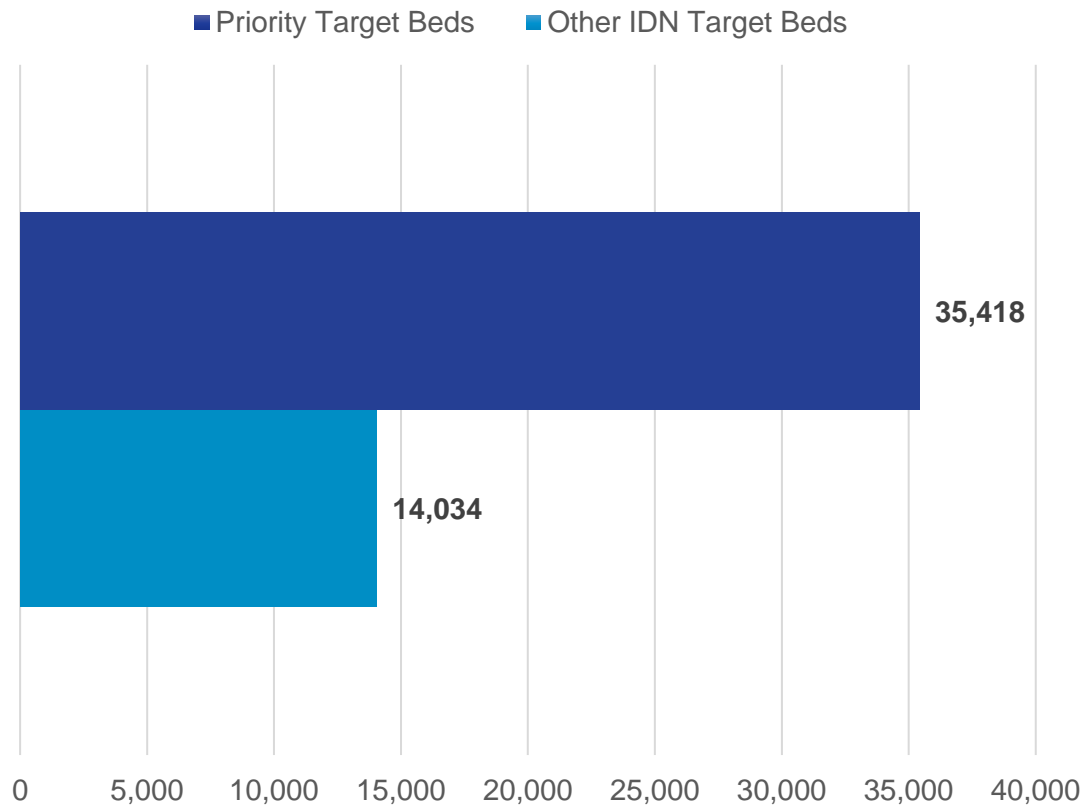
# Key Performance Indicators



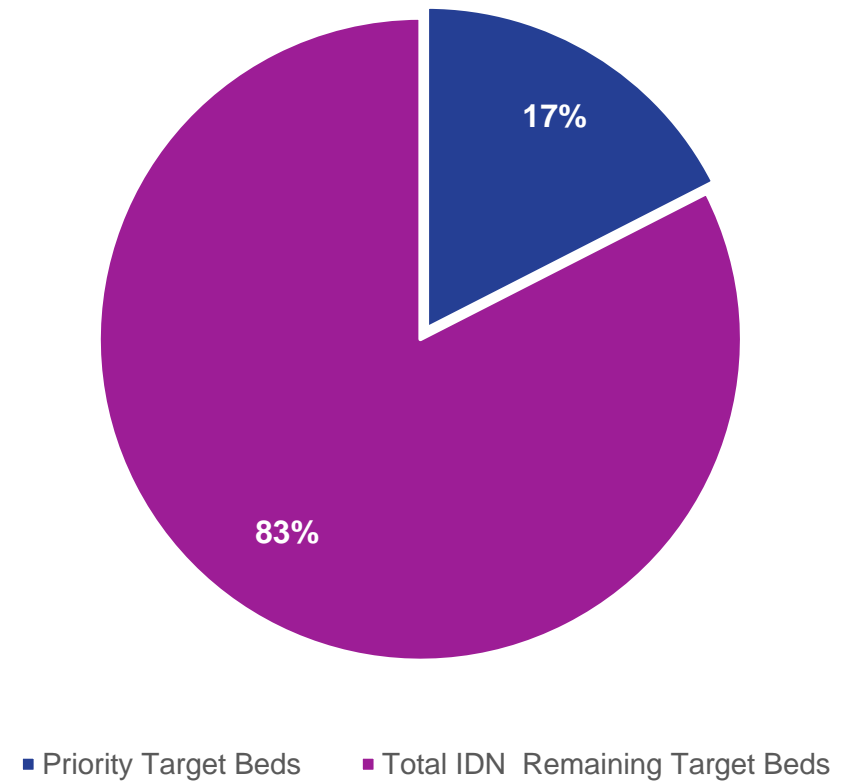
# Early Votes at Multiple IDNs Expected in 2022 Representing 17% of Target Beds and ~50k Total Beds

Additional Voting in Process with Child Accounts in Larger Systems

### IDN Formularies in Process



### IDN Reviews in Process

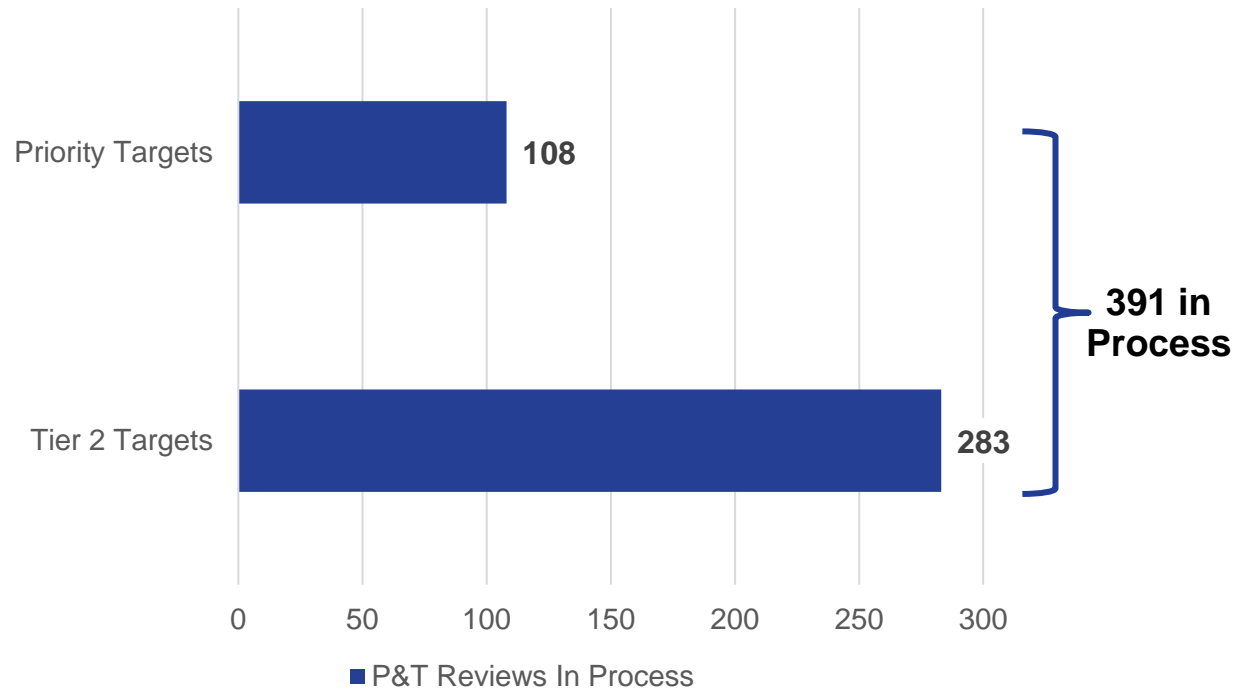


Source: Data on file

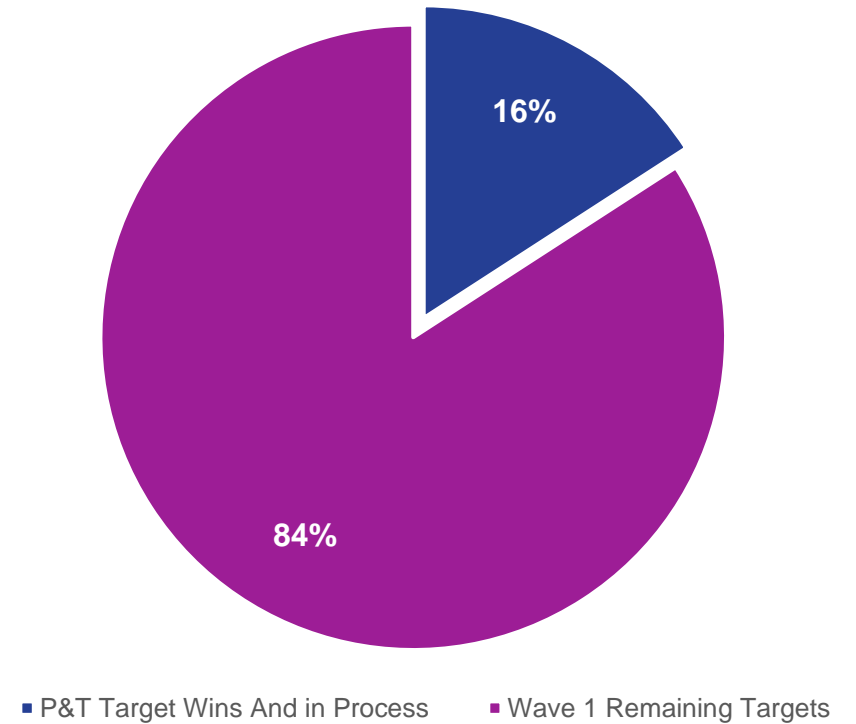
# Early Votes Indicate Strong Interest, with Over a Dozen Formulary Approvals and ~400 Votes in Queue

16% of First Wave Targeted Hospitals in Process in Less Than 4 Months

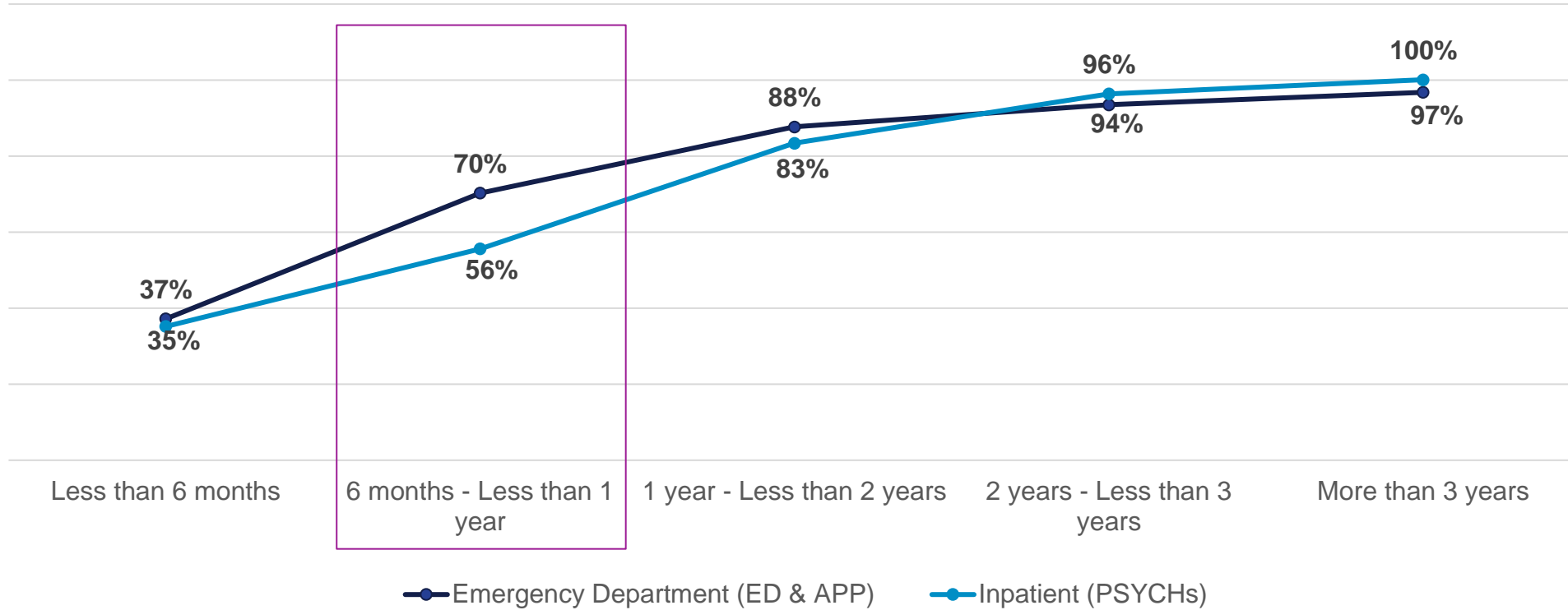
### P&T Formulary Reviews in Process



### P&T Approvals and in Process vs. Targets



# Clinicians Anticipate Usage Within First Year Post-Formulary Approval



Source: HCP ATU Landscape Research, January 2022; If PRODUCT X were available to you and on formulary, when would you most likely first try it from time of launch

# Environment Favors Growth in 2023



- **Fully integrated commercial team built and sales team expansion under way**
- **Market dynamics evolving and favorable** to IGALMI demand
- **Sales interaction very positive** with 71% reach and early use yielding expected results
- **Market access momentum building** with 46% of GPO beds under contract and 17% of total target IDN beds in process

# Thank you!

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