

Models of Buprenorphine Induction

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Frances Levin, MD is a consultant for GW Pharmaceuticals and receives study medication from US Worldmed. This planning committee for this activity has determined that Dr. Levin's disclosure information poses no bias or conflict to this presentation.

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- Date of Release December 16, 2014
- Date of Expiration December 16, 2017



System Requirements

- In order to complete this online module you will need Adobe Reader. To install for free click the link below:
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- The overarching goal of PCSS-MAT is to make available the most effective medication-assisted treatments to serve patients in a variety of settings, including primary care, psychiatric care, and pain management settings.
- The target audience for the current module should have basic familiarity with the general process of BUP induction as covered by the standardized, designated 8-hour training programs.



Educational Objectives

- At the conclusion of this activity participants should be able to:
 - List barriers reported by physicians to initiating buprenorphine (BUP) in an office setting
 - Determine the goals of induction
 - Identify different clinical models of BUP induction and associated evidence
 - List the pros/cons of the various models of BUP induction



Induction Goals

- Initiate effective BUP dosing
 - Reduce withdrawal
 - Reduce cravings
 - Stop non-rx opioid use
- Avoid adverse effects
- Establish care structure
 - Sets the tone regarding structure, follow-up, and monitoring
 - Helps establish patient rapport, develop therapeutic alliance



Induction Challenge

- Barrier for inexperienced MD adoption¹⁻⁴
- Concern related to:
 - Precipitated withdrawal transitioning from full -> partial mu agonist
 - Logistics of office induction: time/resources for assessment & monitoring response to initial doses
 - Economics
 - Guideline ambiguity: variable dosing/timing recs
 - Patient-specific factors: e.g., clinical stability



Patient Induction Concerns

- Withdrawal symptoms
- Travel for office induction
 - Rural: long distances potentially burdensome
 - Disenfranchised: limited transportation access
 - Driving discouraged after medication initiation.
 Unclear if driving ability is impaired by opioid withdrawal prior to visit.
 - Anonymity: potentially compromised if pt is in withdrawal in the office or if needs to access a ride
- Patient perspectives data are needed



This Lecture Covers

- 3 models of induction for office practice
 - General in-office approach: the standard approach recommended in CSAT, TIP 40 & 8-hr courses
 - Specialty approach (non-Opioid Treatment Program (OTP)): Could this facilitate induction for some patients/practices?
 - Unobserved "home" approach: patient self-initiated often with clinician phone support



General In-Office Induction

- National guidelines (CSAT, TIP 40, 2004)
 - Withdrawal: should be mild moderate, but no specific recommendations regarding measurement cut-offs
 - Abstinence timing: varies based on opioid duration of action
 - 12 24 hr short-acting
 - 24+ hr methadone
 - Dose: 2 4mg initial BUP dose, 8mg maximum on Day #1
 - Monitor: 2+ hours, assessing treatment response



General In-Office Induction

- Updated PCSS guidance¹
 - Measure withdrawal, several scales available such as:
 - Clinical Opioid Withdrawal Scale (COWS 12–16 is mild/moderate and appears sufficient to avoid precipitated withdrawal²)
 - Hours of abstinence since last full mu opioid use
 - 12-16 short-acting, 17-24 intermediate-acting, 30-48 methadone
 - BUP dose: 2 4mg initial, 16mg max day #1
 - Monitor: 1+ hours
 - Follow-up: phone + visit in 3 4 days



Clinical Opioid Withdrawal Scale (COWS)

- 11 item scale, max 48 points
 - Includes both objective and subjective items
 - Pulse
 - Diaphoresis
 - Tremor
 - Pupils dilated
 - Yawning

- GI upset
- Restlessness
- Bone/joint ache
- Anxiety
- Gooseflesh

- Runny nose/tearing
- Objective withdrawal signs help establish physical dependence
- Serial scales for treatment response assessment



In-Office Induction Effectiveness

- Few studies specifically assess induction outcome
 - 83% treatment retention after a 2 week induction phase in a primary care study¹
 - Variable precipitated withdrawal²⁻⁴
 - 10% in a 1° care/specialist clinic³
 - * 6+ hr heroin abstinence minimum prior to induction
 - None in residential program⁵
 - Mean COWS prior to induction: 8
 - * 1/3 ancillary withdrawal medication use

General In-Office Induction

- Summary
 - Variation in abstinence & dosing recommendations may pose a clinical challenge
 - Withdrawal scale cutoffs are useful to guide induction
 - Time requirement is potentially burdensome
 - Complication rate is generally low



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Specialty Induction Approaches

- Two specialized induction approaches will be reviewed:
 - Outpatient Buprenorphine Treatment Program¹
 - Established 2003 with a goal as an induction center
 - Induction data were collected early after program inception
- General Medical Hospital Induction Study²
 - Examined induction vs. detoxification on a medical ward
 - Coupled with outpatient primary care maintenance linkage

¹ Gunderson, 2009; ² Liebschutz, 2014



Buprenorphine Program of Columbia University

- Outpatient psych practice established 2003
- Staffing
 - MD 2 addiction specialists
 - Clinical psychologist
 - RN
 - Administrator
- Self-pay with insurance reimbursement



Clinical Procedures

- Pre-induction visit
 - Clinical assessment by MD/psychologist
 - Procedural review (changed 3 months after program start)

Abstinence: Initial

- 12 hr short-acting
- 24 hr long/methadone

- ~ 3 Months Later
- 16 hr short-acting
- 24 hr long-acting
- 36 hr methadone
- Ancillary withdrawal medication available at the program
 - Clonidine
 - NSAIDs
 - Ondansetron



Induction Visit Procedures

- COWS on arrival and serially
 - General target score 5-12 prior to starting BUP
 - After the first 3 months of experience, began to require > 1 objective sign and raised the pre-dose COWS target to >7
 - Discharge after the COWS decreased to < 4
- Dosing
 - 2-4mg q1-2 hr (BUP/NX or BUP) started at program
 - Take home meds + instructions/phone #s
 - Max 16mg Day 1
 - Initial Rx/stored on site > dispensed (Requires locked storage and detailed documentation)
- Ancillary withdrawal meds taken prn before or after initiation



Induction Effectiveness Study

- Chart review¹ for the first 41 patients examined:
 - Temporal process of induction
 - Time until first BUUP dose given
 - Time unit withdrawal was relieved
 - Total time at clinic
 - Procedures associated with efficiency
 - Withdrawal level and BUP dosing
 - Hypothesis: ↑efficiency over phases
 - Each phase included ~13-14 patients over a 2-3 month period after the program opened



Patient Characteristics (n=41)

Age (mean)	41 yr
Sex (Male)	59%
Race (White)	78%
Employed	56%
Insured	83%
Psychiatric d/o	68%
Primary opioid, past mo. daily Heroin Rx opioid (non-methadone) Methadone	41% 41% 22%
Prior buprenorphine	5%

25

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Total Time at the Clinic



- Efficiency improved across the phases
 - Time may pose less of a practical burden for office induction as experience is gained
 - Several factors may have influenced efficiency



Time Delay Until Initial Dose



- The delay until the initial dose was longer for Phase 1
 - May have related to change in recommended pre-BUP abstinence with patients from later phases arriving in more withdrawal
 - Means COWS on arrival: 6 for Phase 1, 10 for Phases 2 & 3



Time Until Withdrawal Relief



- The time until withdrawal relief was longer for Phase 1
 - Might have related to initial BUP dose size and pre-dose ancillary withdrawal medication use (depicted next slide)
 - COWS immediately before the initial dose did not differ by Phase (mean score = 10)



Medication Dosing

Buprenorphine Dosing (mean mg)		Phase		
		2	3	
Initial dose	2*	3	3	
Total at program	9	7	6	
Total Day #1 (includes at program + take home)	13	11	14	
Ancillary withdrawal medication use (%)				
Pre-induction	7*	31	57	
Post-induction	20% c	overall (NS)	



Procedural Considerations

- Factors that may facilitate induction¹
 - Longer abstinence before BUP initiation (16h, 24h, 36h for short-acting opioids, long-acting formulations, and methadone, respectively)
 - COWS 8-10 with objective signs appears adequate, though 12 might be preferable based on a clinical trial²
 - Ancillary withdrawal meds could be considered
- Day 1 max 16mg was well tolerated
- Efficiency improves with experience, potentially could translate to other office settings



Hospital-Based Induction

- General Medication Hospital Induction Study¹
 - Objective: Examine effectiveness of buprenorphine treatment initiation during a 5-day medical hospitalization
 - Design: Randomized clinical trial comparing 1) hospitalbased buprenorphine induction with linkage to outpatient primary care after discharge for opioid agonist treatment (OAT) vs. 2) hospital detoxification
 - Main outcome measures:
 - Entry and sustained buprenorphine maintenance at 1,
 3, & 6 months
 - Prior 30-day use of illicit opioids (self-report)



Hospital-Based Induction

- Invention
 - Day 1: Induction with buprenorphine/naloxone 2/0.5, max QID, for both treatment groups
 - Day 2 5:
 - Detoxification Group: BUP 8mg > 6mg > 4mg > 2mg (Days 2-5, respectively)
 - Linkage Group: BUP 12mg on Day 2, 16mg on Days 3-5 with research staff facilitated linkage to hospital-associated primary care buprenorphine OAT



Patient Characteristics (n=139)

Age (mean)	41 yr
Sex (Male)	71%
Race (White)	43%
Baseline illicit opioid use (past 30d), mean days	21
Baseline past month prescription opioid agonist treatment	41%

 The intervention groups did not differ significantly regarding demographics, baseline frequency of opioid use or opioid agonist treatment



Hospital-Based Induction

- Results¹
 - Buprenorphine OAT entry was significantly more likely in the hospital-based induction and linkage group compared to the hospital detoxification group (72% vs. 12%, p < .001).
 - At 6 months, 17% of linkage vs. 3% detox patients were receiving buprenorphine OAT (p=.007)
 - Linkage patients reported less past 30d illicit opioid use at the 6 month interview



Specialty Induction Approaches

- Potential Specialty Induction Approach Limitations
 - Accessibility: dedicated outpatient and inpatient induction programs are of limited availability
 - Cost: the cost of such approaches may be prohibitive for patients and may not be cost-effective relative to outpatient induction
 - Resources: the staffing and other resources required for outpatient program induction and inpatient induction with linkage may be a barrier for approach adoption



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 - Unobserved "home" approach



Unobserved "Home" Induction

- PCSS Guidance (2013)¹
 - Experienced clinicians (and patients) probably better suited for unobserved approach than inexperienced
 - Provide written instructions about withdrawal assessment, dose timing and amount
 - Maintain and document phone contact
 - Follow-up visit within 2 days
 - Overall supporting level of evidence: Low/Moderate, though many unobserved inductions likely performed without adverse effects



Implementation

- ~40% Massachusetts prescribers utilize unobserved induction at least some of the time¹
- >1100 patients in U.S. published reports²⁻⁸
 - Procedures appear generally c/w PCSS guidance⁹
 - Adoption appears more widespread in academic primary care clinics
 - Most data are prospective or retrospective cohort
 - Only 1 published RCT, a pilot study described as follow



Clinical Procedures

- Adapted from a NIDA-funded pilot study1
 - Pre-visit phone
 - Initial visit
 - Patient assessment
 - Procedural review
 - Decision making discussed
 - Patient handouts reviewed



- Patient assessment
 - Establish diagnosis
 - Use pattern (type/amount/duration/route)
 - Document physiological dependence
 - Co-morbidity
 - Goals and motivation
 - UDS/Rx monitoring program



- Procedural review with patient
 - Abstinence timing: 16, 24 36+ hrs for transition form short/long-acting opioids, and methadone, respectively
 - Withdrawal toleration vs. precipitated withdrawal risk reduction
 - Subjective Opioid Withdrawal Scale (SOWS)¹
 - 16 items, 0-4 scale, \geq 17 (mild) prior to initiation
 - Bup dosing: target the minimally effective dose*
 - Consider ancillary withdrawal medication but not standardized



- Procedural review, continued
 - Safety
 - Interaction risks, avoiding driving, safe storage
 - Precipitated withdrawal avoidance: review abstinence recommendations
 - Follow-up plan
 - Phone contact the day of induction and on subsequent days
 - Visit in 3-7 days



- Patient handouts: review when/how to start
 - SOWS \geq 17 (higher if possible) as a goal before dosing
 - Bup dosing
 - 1-2 mg to start, then q2hr prn
 - Max 8 mg day #1 (16 mg maximum ok'd by phone)
 - Day #2
 - Total day #1 in the morning (can split BID)
 - 2 mg q2hr prn, mx 16 mg (24 maximum ok's by phone)



Unobserved Induction Outcome Data Summary

- Effectiveness: 1 wk success ~70%¹⁻² defined as being in treatment, on Bup, and free of withdrawal
- Safe: AE's appear generally mild/infrequent¹⁻⁴
 - 1-5% precipitated withdrawal
 - 5-20% prolonged withdrawal
- Increased risk of AE's appears to occur with¹⁻³
 - Methadone transfers
 - Bup inexperience
 - Procedural non-adherence



Observed vs. Unobserved

Potential factors to consider	Observed	Unobserved
Effective and tolerability	+++	+(+)
Establish treatment structure	+++	-
Development of therapeutic alliance	++	-/+
Confirm baseline withdrawal (and presence of physiologic dependence	+++	-/+*
Convenience/preference MD Patient 	-/+ -/+	+++ ++
Resources/cost		+
Co-morbidity	-/+	-/+

* Note: pt's can present for evaluation in mild withdrawal but start Bup out of the office



Summary

- Induction is challenging aspect of treatment
- Hopefully practice-based evidence from different induction approaches will help improve induction efficiency, implementation, and effectiveness
- Several models of induction are available for initiating buprenorphine treatment, including observed and unobserved "home" approaches
- Pros/cons of the various models of induction should be considered by clinicians, patients, and policy makers



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Funding for this initiative was made possible (in part) by Providers' Clinical Support System for Medication Assisted Treatment (5U79TI024697) from SAMHSA. The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.

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