2. Pediatric Pain

9:50–10:45am

History and Presentation:
Cynthia Kim

Assessing Pain in Children
- Nursing Perspective: Lisa Purser
- Physician Perspective: Cynthia Kim

Assessing and Treating Depression in Children
- Psychology: Cristina Benki
- Psychiatry: Eva Ihle
- Music Therapy: Oliver Jacobson

Pediatric Palliative Care
Tom Reid

Case 2 Panel Discussion

Case 2 | Pediatric Pain | Disclosure Statements

- Cynthia Kim
- Lisa Purser
- Cristina Benki
- Eva Ihle
- Oliver Jacobson
- Thomas Reid

Case 2 | Pediatric Pain | History and Presentation

Cynthia Kim, MD, EdD, Lac
Associate Professor,
UCSF Department of Medicine,
Division of Pediatric Hospital Medicine

The Examiner

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Hall makes it
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PANDER

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Medicine's future

Telehealth brings doctors right to patients via video conference, no

Case 2 | Pediatric Pain| History and Presentation | Patient SM

- 12 year old male
- Li Fraumeni syndrome (cancers)
- 2006: ALL diagnosed, BMT with TBI
- 2012: multifocal OS (chemo & radiation)
- 2014: celcoxib, hydromorphone 4mg q3hr prn, methadone 25mg TID, pregabalin

Case 2 | Pediatric Pain| History and Presentation | Tumor Progression | UCSF Hospitalization 8/24 – 9/29/14

- Admitted for increasing left leg pain
- Hydromorphone PCA, ketamine infusion, clonidine patch, sertraline for anxiety
- Left femoral nerve ablation
- Opioid rotated to Fentanyl PCA, oxycodone
- Discharged to George Mark (palliative care)

Case 2 | Pediatric Pain| History and Presentation | Anxiety| Re-admitted 10/29-11/13/14

- “increased pain" = anxiety
- Music therapy
- Psychologist- acute stress
- Psychiatrist- sertraline & duloxetine
- Fentanyl PCA weaned off, methadone decreased, oxycodone prn

Case 2 | Pediatric Pain| History and Presentation | Home for 3 Months

Case 2 | Pediatric Pain| History and Presentation | February to Now

- 02/06/15: Right knee saphenous nerve phenol ablation + genicular nerve cRF
- 02/14/15: DNR/DNI placed
- 02/21/15: Re-Admitted
- 03/02/15-03/06/15: Intrathecal Cath Infusion
- 03/10/15-03/21/15: duloxetine and sertraline increased
- 03/20/15: demedetomidine trial
- 03/31/15: hemoptysis with increasing lung mets - goals of care changed to sedation and comfort care in the hospital

Case 2 | Pediatric Pain| History and Presentation | Patient Case Summary

- Tumor progression
- Pain medication escalation
- Anxiety increases, depressive symptoms
- Nerve blocks
- DNR
- Hemoptysis
- Parental fear of going home
- Comfort care in hospital

Case 2 | Pediatric Pain| Assessing Pain in Children | Pain Scales

Case 2 | Pediatric Pain| NPASS| Neonatal Pain, Agitation & Sedation Scale

Assessment Criteria	Sedation		Normal	Pain / Agitation	
	-2	-1	0	1	2
Crying Irritability	No cry with painful stimuli	Moans or cries minimally with painful stimuli	Appropriate crying Not irritable	Irritable or crying at intervals Consolable	High-pitched or silent-continuous cry Inconsolable
Behavior State	No arousal to any stimuli No spontaneous movement	Arouses minimally to stimuli Little spontaneous movement	Appropriate for gestational age	Restless, squirming Awakens frequently	Arching, kicking Constantly awake or Arouses minimally / no movement (not sedated)
Facial Expression	Mouth is lax No expression	Minimal expression with stimuli	Relaxed Appropriate	Any pain expression intermittent	Any pain expression continual
Extremities Tone	No grasp reflex Flaccid tone	Weak grasp reflex ↓ muscle tone	Relaxed hands and feet Normal tone	Intermittent clenched toes, fists or finger splay Body is not tense	Continual clenched toes, fists, or finger splay Body is tense
Vital Signs HR, RR, BP, $Sa0_2$	No variability with stimuli Hyperventilation or apnea	< 10% variability from baseline with stimuli	Within baseline or normal for gestational age	↑ 10-20% from baseline $Sa0_2$ 76-85% with stimulation – quick ↑	↑ > 20% from baseline $Sa0_2 \leq 75\%$ with stimulation – slow ↑ Out of sync with vent

Case 2 | Pediatric Pain| NIPS| Neonatal Infant Pain Scale < 2 mo

Parameter	Finding	Points
Facial Expression	Relaxed	0
	Grimace	1
Cry	No Cry	0
	Whimper	1
	Vigorous Crying	2
Breathing Pattern	Relaxed	0
	Change in Breathing	1
Arms	Relaxed	0
	Flexed/Extended	1
Legs	Relaxed	0
	Flexed/Extended	1
State of Arousal	Sleeping/Awake	0
	Fussy	1

Parameter	Finding	Points
Heart Rate	Within 10% of Baseline	0
	11-20% of Baseline	1
	>20% of Baseline	2
Oxygen Saturations	No additional oxygen needed	0
	Additional oxygen required	1

Case 2 | Pediatric Pain| NIPS| Neonatal Infant Pain Scale < 2 mo

Pain Score	Guidelines for Intervention
0-3 Mild	Non Pharmacologic (primary method) -Pacifiers, sucrose, hand-to-mouth, non-nutritive sucking -Whiskey nipple* -Swaddling, nesting, holding -Position changes, correct positioning for procedures -Decrease environmental stimuli (light, noise, abrupt movements) -Decreased handling with rest periods between procedures -Comfort measures noted to be effective with individual neonate -Soothing vocalizations, recorded intrauterine sounds Pharmacologic -Acetaminophen (Tylenol™)
4-6 Moderate	Non Pharmacologic -See above Pharmacologic: (primary method) -Narcotic bolus
7-10 Severe	Pharmacologic: (primary method) -Narcotic intermittent bolus -Consider narcotic drip

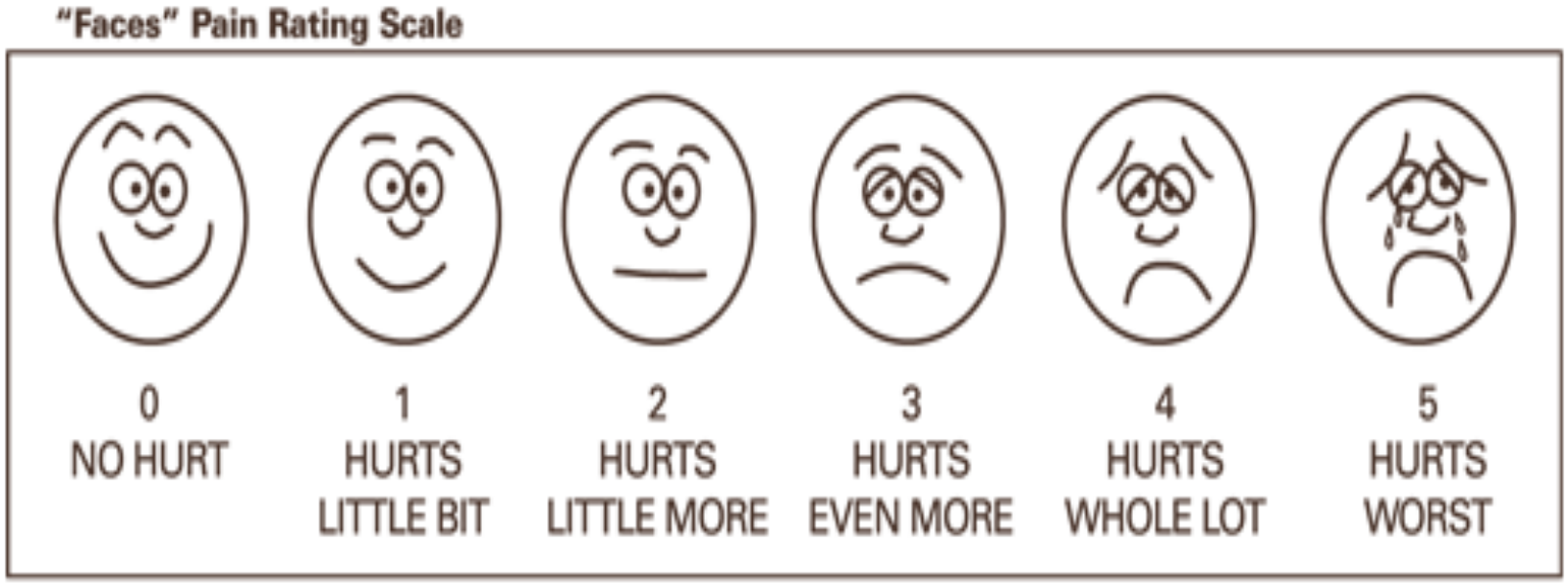
*Whiskey nipple: 1/5 dilution of bourbon in D5W; ~3 cc/kg dripped into a cotton filled nipple (as pacifier)

Case 2 | Pediatric Pain| FLACC| 2 mo - 3 yrs, Non-Verbal

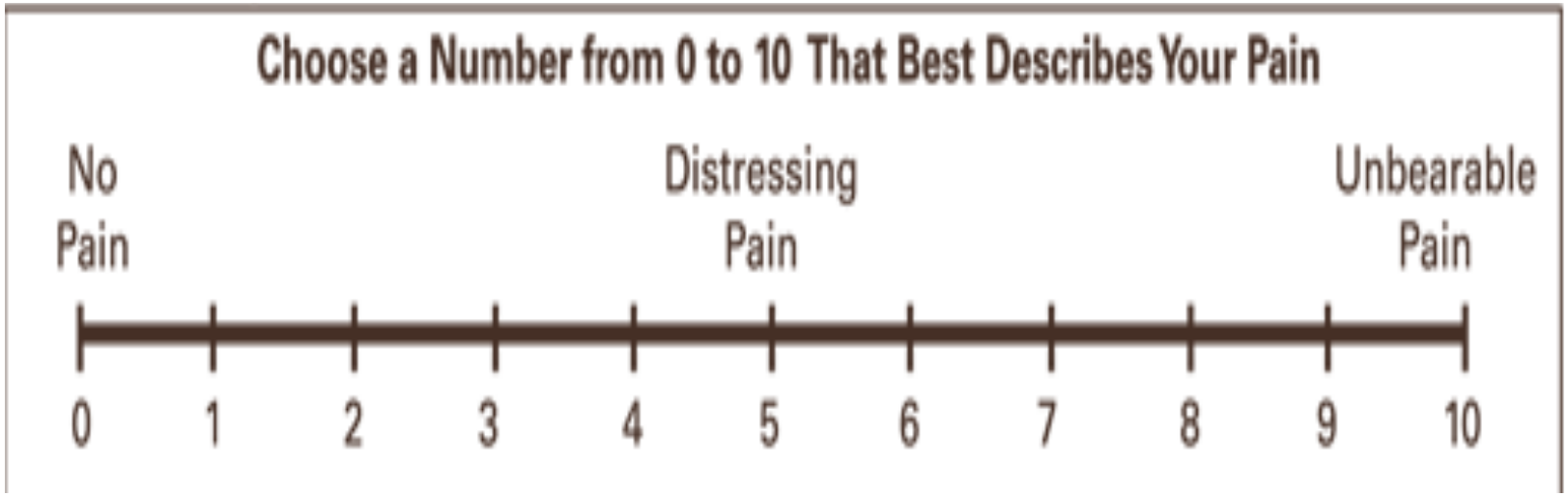
Behavioral Observation Pain Rating Scale

Categories	Scoring		
	0	1	2
Face	No particular expression or smile; disinterested	Occasional grimace or frown, withdrawn	Frequent to constant frown, clenched jaw, quivering chin
Legs	No position or relaxed	Uneasy, restless, tense	Kicking, or legs drawn up
Activity	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense	Arched, rigid, or jerking
Cry	No crying (awake or asleep)	Moans or whimpers, occasional complaint	Crying steadily, screams or sobs, frequent complaints
Consolability	Content, relaxed	Reassured by occasional touching, hugging, or talking to. Distractable	Difficult to console or comfort
Each of the five categories (F) Face; (L) Legs; (A) Activity; (C) Cry; (C) Consolability is scored from 0-2, which results in a total score between 0 and 10.			

Case 2 | Pediatric Pain| FACES| 3-8 Years



Case 2 | Pediatric Pain| Numeric Rating Scale| >8 Years



Case 2 | Pediatric Pain | Assessing Pediatric Pain | Nursing Perspective

Lisa Purser, RN
Patient Care Manager
IP3- Integrated Pediatric Pain & Palliative Care
Pediatric Prepare
Pediatric Pain Management Clinic
Pediatric Complex Care Clinic
UCSF Benioff Children's Hospital

Case 2 | Pediatric Pain| Comprehensive Pain Assessment

Previous history of chronic pain

- Etiology of the pain
- Date of onset
- Pain locations
- Alleviating/aggravating factors
- Medication management history
  - Previous analgesics
  - Current analgesics
- Nonpharmacologic management strategies
- Effectiveness of current pain management plan
- Impact of pain on mood and function

Case 2 | Pediatric Pain| Ongoing Assessment of New Pain Conditions

- Onset
- Duration
- Pain characteristics/qualities
- Location(s)
- Intensity/severity
- Aggravating/alleviating factors
- Effectiveness of current treatments
- Changes in functional status

Case 2 | Pediatric Pain| Pain Assessment Tools

- Gold Standard = Self-report
  - 0-10 numeric rating scale
  - Wong-Baker FACES Pain Rating Scale (ask the PATIENT to pick a face)
- Behavioral assessment tools (pediatric)
  - NPASS (Neonatal Pain Agitation and Sedation Scale)- ICN
  - NIPS (Neonatal Infant Pain Scale)- healthy neonates
  - FLACC (Faces, Legs, Activity, Cry, Consolability)-preverbal infants and young children
  - Faces Pain Rating Scale->3yrs and older
  - Assume Pain Present
  - For unresponsive patients with conditions thought to be painful. May also use to pre-medicate before painful interventions/procedures (dressing changes, turning, etc.).

Case 2 | Pediatric Pain| Pain Assessment in the Pediatric Patient

- Physiological signs of unrelieved pain may include: sweating, pale color of the skin, flushing of the skin.
- Behavioral signs of unrelieved pain may include: unusual changes in behavior, inconsolable crying, protecting the surgical area of the body, holding their breath, and unusual sleep patterns, may be very quiet or still, may continue to play

Case 2 | Pediatric Pain| Case-specific Challenges

- Mismatch between pain score and behavior
- Anxiety a contributing factor to pain
- High-dose opioid requirements
- Providing adequate analgesia without over sedating the patient may be difficult.
- Unusual sleeping pattern

Case 2 | Pediatric Pain| Strategies

- **Facilitate an interdisciplinary approach to address:**
  - Physical, functional, psychological, social, and spiritual pain
  - Listen and believe the child
  - Family centered care, include parents in decision making, parents know child best
- **Coordination of non-pharmacologic integrative therapies to help manage pain:**
  - distraction, guided imagery, massage, music therapy, child life, psychotherapy
  - Promote emotional expression through play therapy
  - Promote healthy sleep pattern
  - Evaluation and Communication of therapies to providers. What works best

Case 2 | Pediatric Pain| Strategies

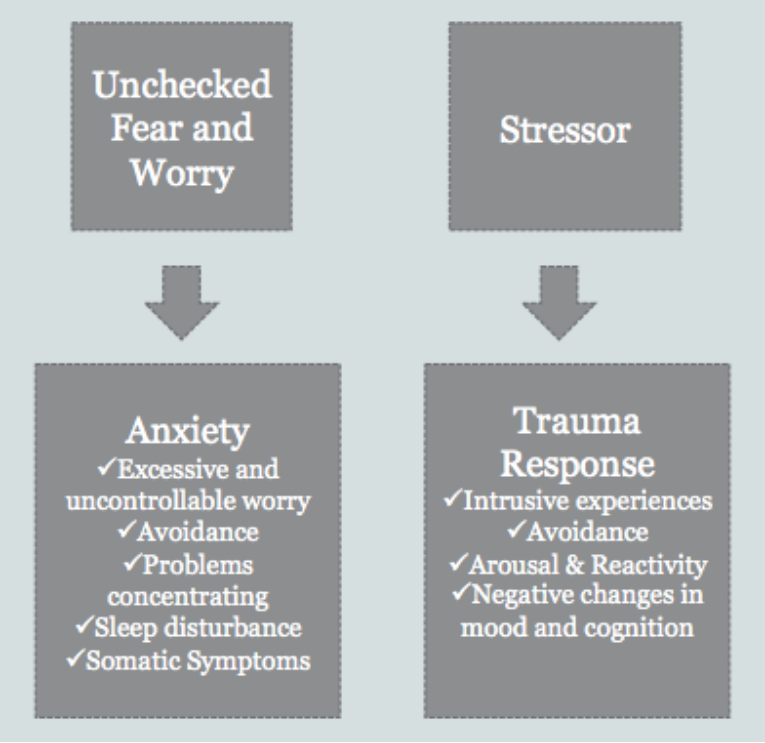
- **Education**
  - Use of the pain assessment tools for both parents and child
  - Address any parent concerns about opiates-fear of addiction, respiratory depression
  - Provider assessment and parent assessment may differ, must honor parent's perception, importance of ongoing parental education so effective pain management is provided
  - Importance of reporting and controlling pain maximizes child's quality of life
  - Manage patient and parent expectations about pain severity and balance between analgesia and sedation

Case 2 | Pediatric Pain | Assessing and Treating Anxiety and Trauma in Children

Cristina Benki, PhD
Psychologist, UCSF Integrated
Pediatric Pain and Palliative Care (IP3)

Oliver Jacobson, MT-BC, Neurologic Music Therapist
UCSF Child Life Services

Case 2 | Pediatric Pain| Anxiety and Trauma



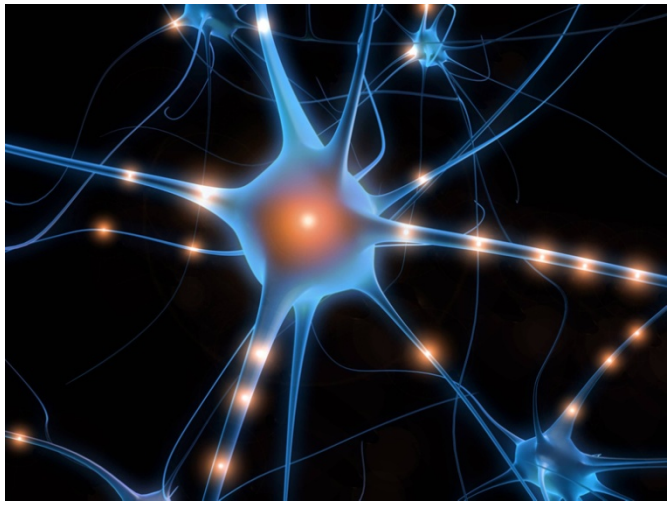
Anxiety is the most common psychiatric disorder among children and adolescents (15-20%)

Case 2 | Pediatric Pain| Anxiety and Pain | Pain – Anxiety Scale

- Anxiety keeps nervous system aroused and causes increase in volume of pain signals
- Anxiety interferes with child's ability to cope with pain and can maintain or feed the experience of pain
  - Acute pain can become chronic pain

Case 2 | Pediatric Pain| Trauma and Pain

- Early memories of pain may become reactivated
- Early pain experiences may alter developing neural pathways
- Emotionally traumatic or painful memories may result in a lower threshold for anxiety during future events perceived as stressful



Case 2 | Pediatric Pain| Case Example

- Underlying anxiety amplified pain he felt
- Repeated exposure to traumatic events
  - Mother's battle with cancer
  - Patient distress at George Mark House
  - Invasive interventions perceived as unhelpful
- Escalating acute stress response symptoms
  - Became more avoidant of providers
  - Began experiencing frequent nightmares
    - Significant sleep disturbance
  - Hypervigilance to parent reactions
  - Increased irritability
  - Decreased use of learned coping skills

Case 2 | Pediatric Pain| Treatment: Initial Interventions & Considerations

Immediate Interventions

Anxiety

- Diaphragmatic breathing
- Muscle relaxation
- Guided imagery
- Thought stopping
- Stress balls

Trauma

- Increasing safety through secure relationships

Treatment Considerations

- Parent Role Models
- Coping Ability and Style
- Age and Cognitive Level

Case 2 | Pediatric Pain| Trauma Narrative

- Trauma Narrative = Story or Script used to explain what has happened and to make sense of the world
- Creating meaning and mastery over a traumatic event through storytelling empowers patients and allows them to regain a sense of control and identity
- Expressive Art Therapies such as Music Therapy and Art Therapy are important mediums for allowing children to develop meaningful narratives

Case 2 | Pediatric Pain| Aaron – Follow Your Dreams

UCSF

Case 2 | Pediatric Pain| References and Resources

Beesdo, K., Knappe, S. & Pine, D. S. (2009). Anxiety and anxiety disorders in children and adolescents: Developmental issues and implications for DSM-V. *Psychiatric Clinics of North America, 32*(3): 483–524. doi:10.1016/j.psc.2009.06.002.

Zelzter, L.K & Blackett, S (2005). *Conquering Your Child's Chronic Pain*. New York, NY: HarperCollins Publishers, Inc.

Cohen, J.A., Mannarino, A. P., & Deblinger, E. (2006). *Treating Trauma & Traumatic Grief in Children and Adolescents.* New York, NY: Guilford Press.

The National Child Traumatic Stress Network: http://www.nctsn.org/

American Music Therapy Association: http://www.musictherapy.org/

Case 2 | Pediatric Pain | Assessing and Treating Depression in Children

Eva Ihle, MD, PhD
Assistant Professor, Acting Medical Director of the Autism Clinic, Director of the Telemedicine Projects and Adolescent Evaluation Clinic, Young Adult and Family Center, UCSF Langley Porter Psychiatric Institute

Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | Overview

- What depression is (biology, epidemiology)
- What depression looks like in the setting of pain (diagnostic criteria, symptoms/ signs)
- What we can do for depression (treatment)

Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | Biology

- Brain disorder
  - Genetics
  - Neurotransmitter physiology
  - Gene x Environment interaction
    - Key environmental factor is stress
- Multiple phenotypes
  - MDD, reactive/secondary
  - Manifestation of another medical condition

Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | Biology

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Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | Epidemiology

- **Statistics** (Luby et al., 2009; Lewis, 2002)
  - At any one point in time:
    - 2% of kids
    - 8% of adolescents
  - Lifetime prevalence: 20 - 25%
  - Depression and other illness occurring together have worse prognosis than when occurring separately (Shaw & DeMaso, 2006)

Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | Epidemiology

- Impact
  - Morbidity (Weissman et al., 1999):
    - Increased risk of substance use, use of medical services, impaired functioning as adults
  - Mortality (CDC, 2007):
    - 11 attempts for every completion
    - Suicide is 3rd leading cause of death of TAY
    - Per 1 million people:
      - 9 children commit suicide
      - 69 adolescents commit suicide
    - Chronic pain is a risk factor for suicide (Shaw & DeMaso, 2006)

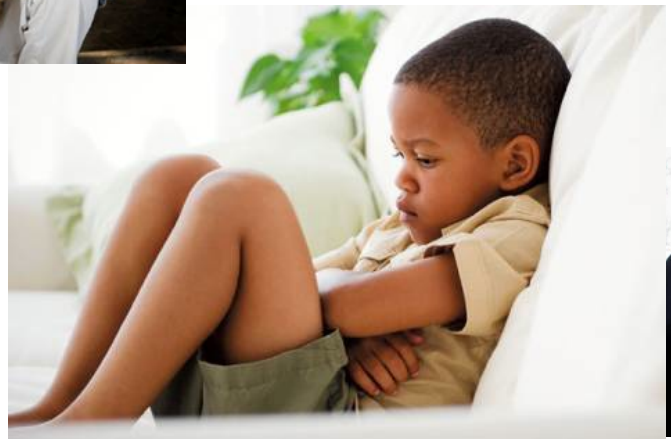
Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | Diagnostic Criteria

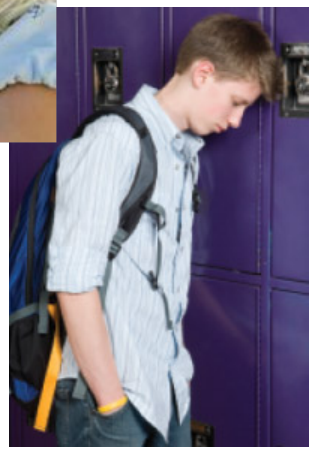
- At least 5 symptoms (list on next slide)
- Duration of more than 2 weeks
- Causing distress, impairment

Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | Symptoms

- Mood
  - “grumpy,” “gloomy,” “down,” “I’m bad,” “no one loves me”
  - Irritability, negativity
- Attitude
  - Loss of interest
  - Low self esteem
  - Hopelessness / life not being worth living
- Physiological
  - **Pain:** joint, limb, back, *abdominal, headache*
  - Disrupted sleep/insomnia
  - Decreased/increased appetite
  - Poor concentration
  - Decreased/increased activity level

Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | Signs





Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | Signs

- Boredom/loss of interest
- Problems paying attention / change in school performance
- Monotone voice
- Physical complaints (tummy aches, headaches, feeling sick)
- Fatigue
- Withdrawal
- Misbehavior (acting bad because feeling bad)

Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | Signs

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Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | Treatment Options | Therapy

- Brief Therapy
  - Cognitive Behavior Therapy (CBT)
  - Interpersonal Therapy (IPT)
  - Dialectic Behavioral Therapy (DBT)
- Supportive/psychodynamic therapy
  - Younger children (4 – 7 years old)
    - Play (with toys)
  - Older children (7 – 12 years old)
    - Play (with rule-based games)
  - Adolescents (13 years old …)
    - Expressive (talk, art, music…)

Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | Treatment Options | Therapy

- Family Therapy
- Parent-Child Interaction therapy
- Group therapy

Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | Treatment Options | Medications

- Target different transmitter systems
  - SSRIs, SNRIs, NDRIs, TCAs
- Some have dual efficacy (treat pain and mood)
  - SNRIs, TCAs frequently used for pain management
  - Duloxetine, venlafaxine, nortriptyline, amitriptyline
- Purpose is to "take the edge off" symptoms
  - Prescribed as adjunctive to therapy
- Off-label prescribing
  - Only Prozac is FDA approved for children (8 & older)
- "Black-box warning"

Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | Treatment Options | Medications

Things to keep in mind

- Not addicting
- Not meant to sedate, dull, change personality
- Medication needs to be taken daily
- It can take 2-4 weeks for initial effect
- Side effects can occur, but tend to resolve in 1-2 weeks
- Continue the medication even after child is feeling better

Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | Treatment Options | Medications

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Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | Conclusions

- Depression in childhood is a real phenomenon with profound consequences.
- Depression is treatable.
- Treatment options are numerous.
- Treatment is effective.

Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | References

Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS): www.cdc.gov/ncipc/wisqars

Lewis, M. (2002) *Child and Adolescent Psychiatry: A Comprehensive Textbook, 3rd ed.* Lippincott Williams, & Wilkins, Philadelphia.

Luby JL, Si X, Belden AC, Tandon M, and Spitznagel E. (2011) Preschool Depression: Homotypic Continuity and Course Over 24 Months. *Arch Gen Psychiatry*. 2009 August; 66(8): 897–905.

Case 2 | Pediatric Pain| Assessing and Treating Depression in Children | References

Shaw, RJ and DeMaso, DR. (2006) *Clinical Manual of Pediatric Psychosomatic Medicine.* American Psychiatric Publishing, Inc., Washington, DC.

Weissman MM, Wolk S, Goldstein RB, Moreau D, Adams P, Greenwald S, Klier CM, Ryan ND, Dahl RE, Wickramaratne P. (1999) Depressed adolescents grown up. *JAMA*. May 12;281(18):1707-13.

Case 2 | Pediatric Palliative Care | Beyond Pain Treatment

Thomas Reid, MD, MA
Assistant Professor,
Palliative Care Program, UCSF Departments of Medicine and Pediatrics

Learning Objectives

By the end of this segment you will be able to…

- Describe the basic content of an early pediatric palliative care consultation, including its relationship to pain management
- List criteria that might trigger consultation with a pediatric palliative care specialist, particularly for issues of pain management
- Appreciate the value of the interdisciplinary care approach to pediatric palliative care

Pediatric Palliative Care

Provides an extra layer of support that…

- Helps patients/families feel better (Quality of life)
  - Support
  - Symptom management (including pain)
- Helps patients/families match care to their goals
  - Complex/difficult communication
- Uses an interdisciplinary approach to coordinate care
- Works in conjunction with other teams

Pain and Pediatric Palliative Care

Which pain patients would benefit from palliative care?

- Patient with serious, life-threatening or life-limiting illness
- Pain is
  - Complex
  - Chronic
  - High-context
  - Complicated by other symptoms

Palliative Care or Pain Service?

Which one should I consult?

- At UCSF in Pediatrics you don't have to choose!
  - Anesthesia/Pain and PPC work together

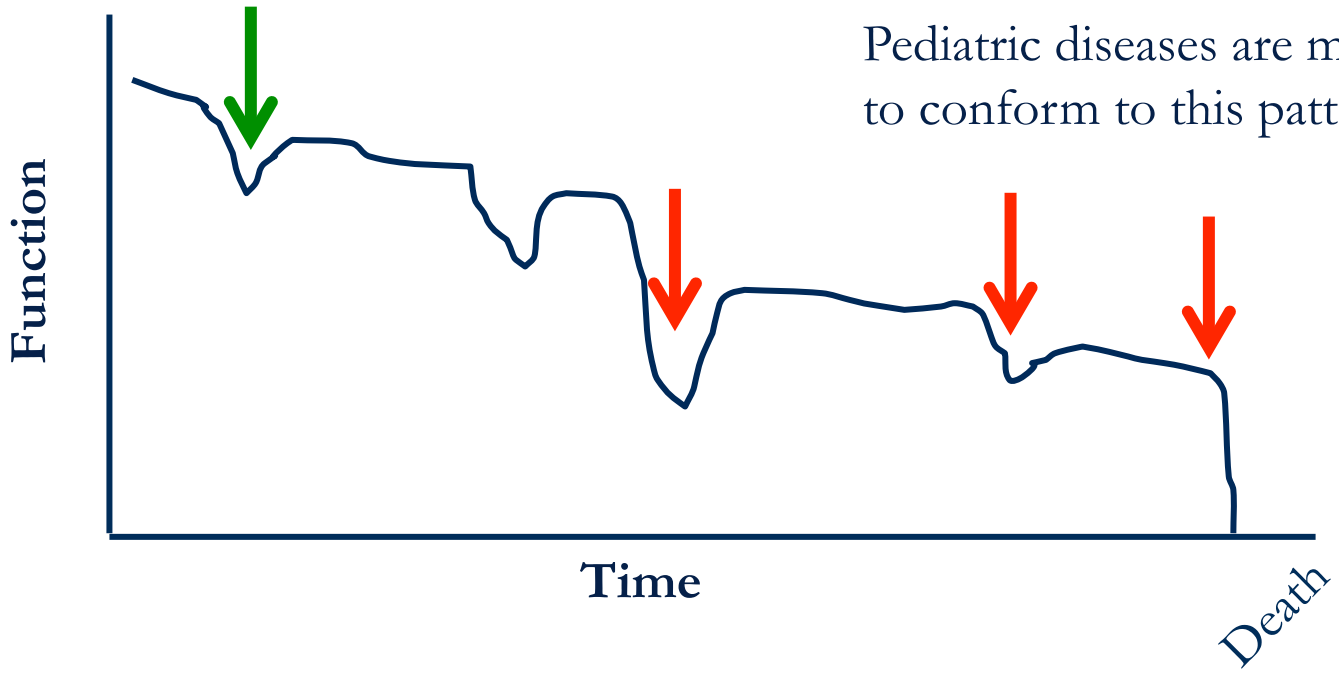
Early Palliative Care Consultation

When else should I consult palliative care?

- At diagnosis or shortly afterwards
- Surprise" question
  - "Would you be surprised if this patient died in 6-12 months?"
- When family (including parents and siblings) needs more support

Early Palliative Care Consultation

Death is rarely "sudden"



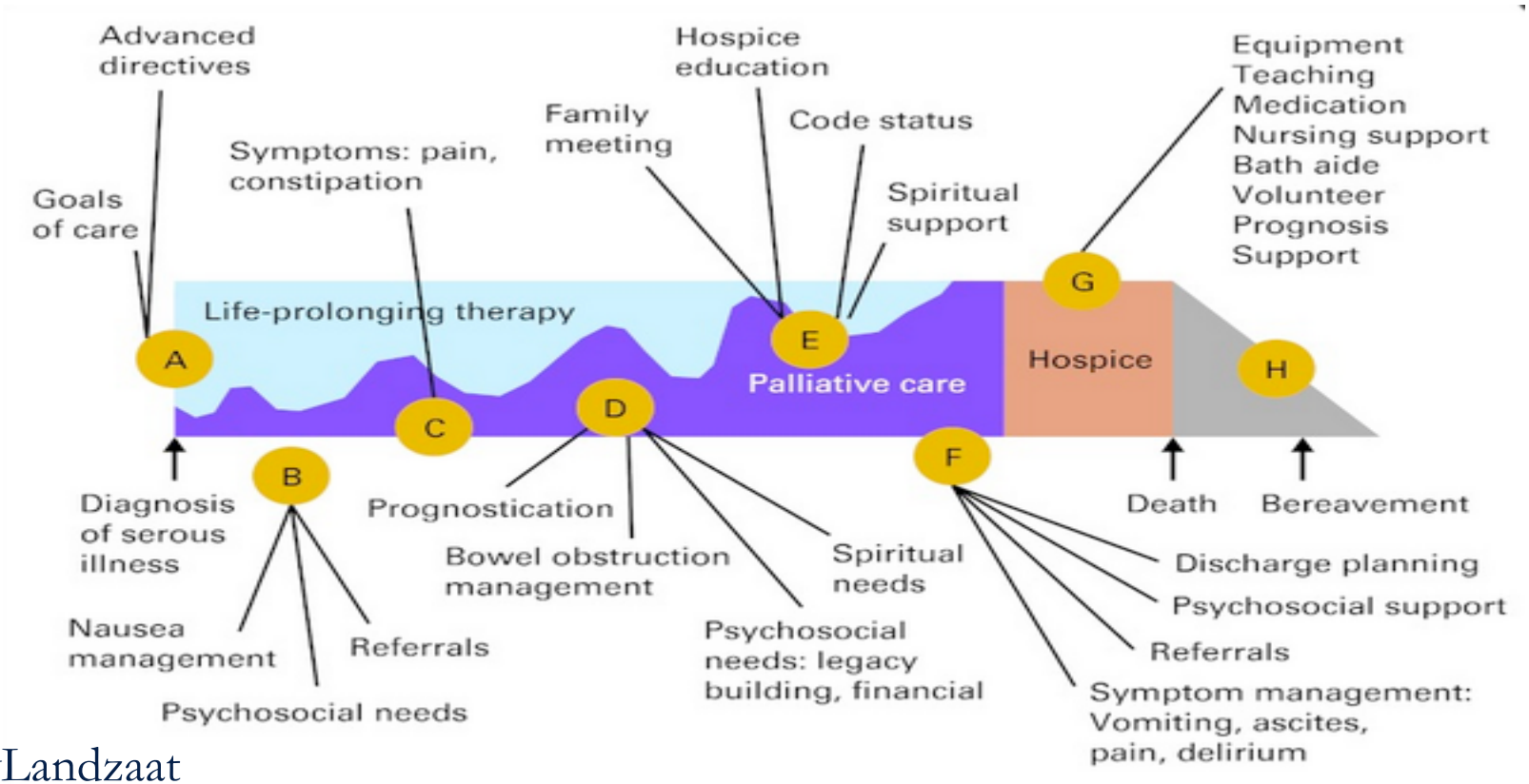
Pediatric diseases are more likely to conform to this pattern

Palliative Care – Not Just Pain

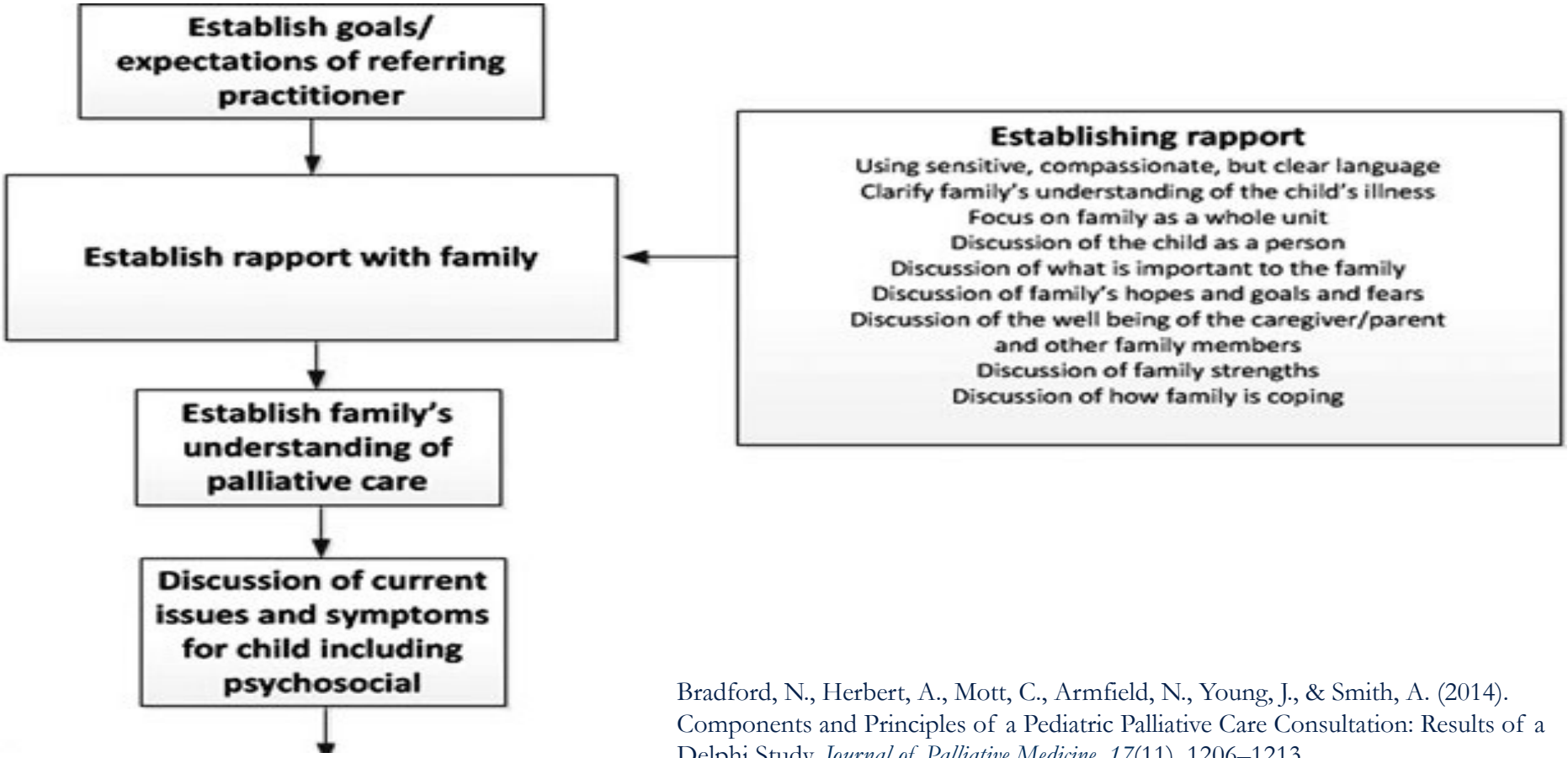
Early consultation allows

- Symptom management concurrent with other medical treatment
- Broad-based support for QOL throughout a difficult course
  - Complements curative or life-prolonging therapies
- Development of relationship that aids later conversations
  - Help to set goals in relation to patient rather than disease
  - Balance hope and expectations

Concurrent Care Model



@LindyLandzaat



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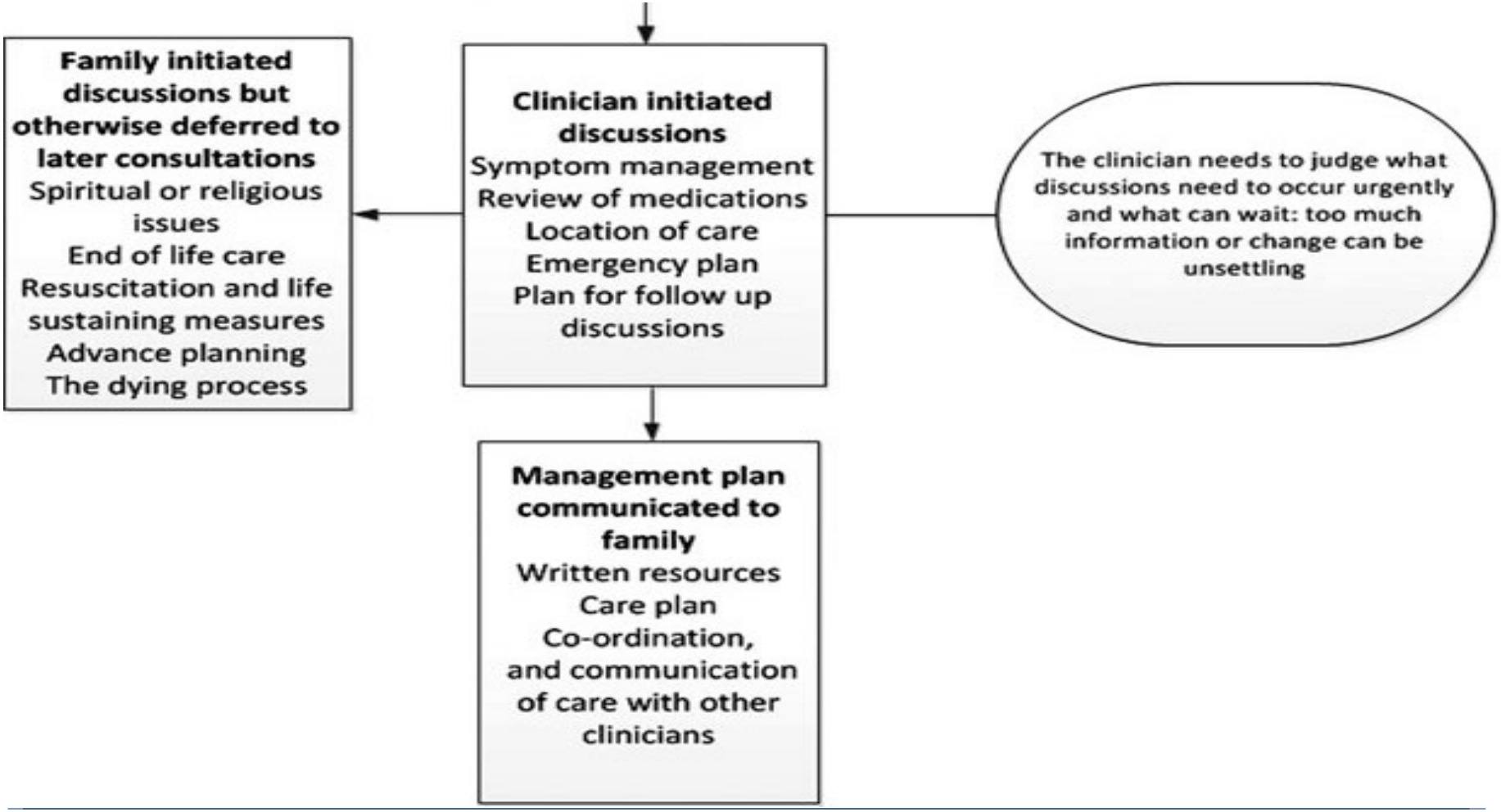
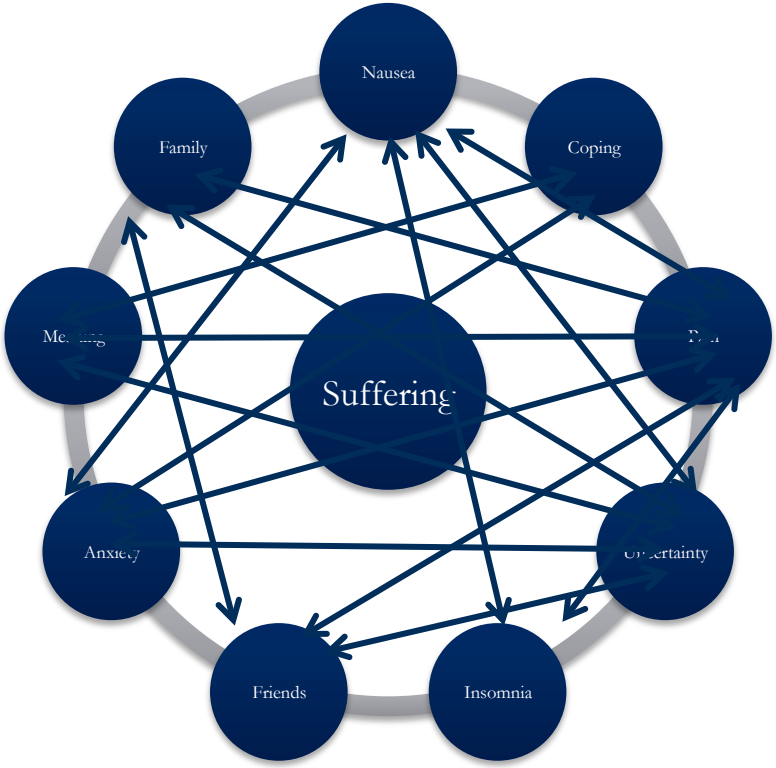

Family initiated discussions but otherwise deferred to later consultations
Spiritual or religious issues
End of life care
Resuscitation and life sustaining measures
Advance planning
The dying process
Clinician initiated discussions
Symptom management
Review of medications
Location of care
Emergency plan
Plan for follow up discussions
The clinician needs to judge what discussions need to occur urgently and what can wait: too much information or change can be unsettling
Management plan communicated to family
Written resources
Care plan
Co-ordination, and communication of care with other clinicians

Suffering is More than Pain



Total Pain

Cicely Saunders

- Physical
- Emotional
  - Depression, anxiety, anger, personality
- Spiritual
  - Meaning, religion, existential
- Social
  - Relationships, roles, family conflict

Total Pain = Total Team

How does an interdisciplinary team lead to better pain control?

- Complex pain (and other symptoms) requires multiple skill sets
  - For assessment
  - For treatment
- Different information is given to and expected from different professions
- Different professional viewpoints lead to unexpected insights
- Team members can operate both together and independently
- Team supports each other and consultants/staff
  - Team members “speak the language” of their profession

The Patient

How did these principles and services help this patient?

- Medical
  - Medications: Ketamine, clonidine, opioids (including methadone), dexmedetomidine, NSAIDs
  - Interventional: Femoral nerve block, intrathecal, acupuncture
- Psychology and Psychiatry
  - Coping skills, processing
  - Medications: sertraline, duloxetine
- Social
  - Parental fears of returning home – George Mark

The Patient

How did these principles and services help this patient?

- Child Life Services
  - Biofeedback
  - Guided Imagery
  - Art Therapy
- Nursing
  - Support, structure, behavioral plan
- Music Therapy
- Massage Therapy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