Developing a Successful Pediatric Ambulatory Infusion Center: From Concept to Expansion & Beyond

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Nurse Manager
Ambulatory Infusion Center

Objectives
1. Identify essential elements to consider when developing a pediatric Ambulatory Infusion Center
2. Describe unique considerations for daily operations of a pediatric Ambulatory Infusion Center
3. Identify strategies to enhance operations & promote success in a pediatric Ambulatory Infusion Center

Infusion Centers are a subspecialty in Ambulatory that offer accessible, cost-effective care for patient’s with acute illness or chronic disease. By implementing key strategies, Infusion Centers can provide safe, efficient, high-quality, evidence-based care that results in positive outcomes.

Background
• Patient throughput project
• >900 outpatient infusions occurred in an inpatient setting
• 300 outpatient infusions occurred in a surgery/procedural area
• >1200 missed opportunities for inpatient admit or procedure
• Consolidate infusion services into one outpatient location
  • Allergy/Immunology
  • Bariatric Surgery
  • Dermatology
  • Endocrine
  • Genetics
  • Gynecology
  • Nutrition/GI
  • Neurology
  • Pulmonary
  • Renal
  • Rheumatology
  • Transplant services
  • Infectious Disease
Ambulatory Infusion Center

History

- **October 2006**: opened with 8 chairs + 1 private room in the hospital (2500 sq ft / capacity = 9).
  Minor renovations to existing space
- **May 2010**: relocated to the outpatient building & expanded to 10 chairs + 1 private room (3300 sq ft / capacity = 11).
  Major renovations to existing space
- **March 2011**: opened 2nd center with 4 chairs, 2 private rooms & an open area (living room) with capacity for 6 at TCH West Campus (3900 sq ft / capacity = 12).
  New construction
- **FY2013**: Pavilion for Women Infusion Center to open with 5 chairs
  New construction

Measurable Outcomes

- **Throughput optimized**
  Better use of existing capacity
- **Financial opportunities maximized**
  Lower costs / increased revenue
  Increased billing compliance & denials minimized
- **Operations enhanced**
  Increased efficiency & staffing effectiveness
  Decreased length of stay
- **Consistent standard of care**
  Positive outcomes for patients & the organization
  Improved risk management
- **Increased patient satisfaction**
  Timely, efficient infusion therapy

Essential Elements

- **Strategic assessment**
  - Current infusion process
  - Organizational priorities
  - Expansion opportunity / combination of services
  - Resources / experts
  - Reimbursement issues / concerns
  - Market assessment
  - Existence of "competitors", range of services available
  - Recent changes
  - Potential challenges / advantages
  - Risks / benefits (quantify)
Essential Elements

Project Implementation

- Objectives/ Goals/ Priorities
- Organizational structure
- Project members
- Project plan
- Timeline & budget
- Marketing plan

Scope of Services

- Services offered
- Capacity/ volume projections
- Limitations/ exclusions
- Staffing mix/ plan
- Referral/ scheduling process

Space/ Design

- Desired capacity
- Renovations or new construction
- Best practice design standards
- Proximity to ancillary services
- Type/ layout of environment
- Workflow
- Non-patient care areas

Regulations/ Accreditation

- Federal/ State/ Local
- CMS (Medicare/ Medicaid)
- The Joint Commission
- OSHA/ United States Pharmacopeia (USP)
- Internal: Facilities, Compliance, Legal, Safety/ Infection Control

Human Resources

- Complexity of services
- State board requirements
- Qualifications/ experience
- Training/ competency
- Physician supervision ("incident to")
- Management (typically nurse managed)
- Resources/ Technology
Considerations for Daily Operations

**Staffing**
- Staff mix
- Volume/ Acuity/ workload
- Emergency needs
- Manager staffing expectations
- Physician supervision (availability)
- Physical layout/ workflow (direct observation vs closed-door)

Considerations for Daily Operations

**Appointment Scheduling**
- Patient initiated or limited to referring provider
- Treatment versus chair time
- Difficult to master scheduling of chairs
- Mismanaged schedule ➔ delays
- 10%-20% urgent walk-in appointments
- Benefits requirements (precert/ prior authorization)

Considerations for Daily Operations

**Orders/ Protocols/ Documentation**
- Various therapies/ services
- Reoccurring treatment
- Order process (requesting/ receiving/ storage)
- Billing/ reimbursement requirements
- Nursing documentation
Considerations for Daily Operations

**Billing issues/ concerns**
- Frequent changing codes & guidelines (CPT, HCPCS)
- **COMPLICATED** rules with specific criteria/ requirements
- Payer practices & reimbursement policies
- Capturing/ recording all services provided
- Urgent medically necessary visits

**Miscellaneous**
- New technology
- New drugs
- Pharmacy
  - Inventory management (lead time to order/ storage)
  - Expensive, hard to obtain drugs/ Non-formulary
  - Preparation requirements/ time
  - Payer practices (specialty pharmacy)

**Strategy to Improve Efficiency**

**Space Design/ Layout**
- Incorporate best-practice/ evidence-based design standards
  - Open layout
    - Timely detection of problems / diversion of untoward events
    - 90% of drugs require frequent / continuous monitoring
  - Research shows patients prefer an open layout
    - Study revealed 97% prefer direct observation
- Integrate workflow in the design
- EMR workstations throughout space &/or on wheels
- Identify services to consolidate
  (space redundancies eliminated & costs)
**Space/ Square Footage**

**Initial Space/ Capacity= 9**

**New Space/ Capacity= 11**

Open Concept
10 infusion bays + 1 Private Room

Nurse Office
Private room
8 open infusion bays
Entrance
Pharmacy 5 floors up (9th floor)

* = P-tube
= Pass-through window

Supply/ equip/ med storage
utility

Weigh/ measure

Nurse Office
Private room
8 open infusion bays
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Supply/ equip/ med storage
utility

Weigh/ measure

Strategy to Improve Efficiency

**Scheduling Process**

- Centralize scheduling/ benefits process
- Schedule chairs based on ordered treatment
- Standardize visit types
  - Identify length of each visit by drug (chair time)
  - Include preparation, treatment and post observation time
  - Assign visit types based on drug/ length of visit (IV3, IV4, etc)
- Dedicated person to review medical necessity
- Create resources for schedulers & update regularly
- Review orders 24-48 hours in advance
- Track length of stay & turnaround time/ delays
Visit type resource for Schedulers

Coding Resource for Schedulers

Drug Resource
Strategy to Improve Efficiency

❖ Staffing

- Conduct time-study
- Identify workload per treatment
- Assign acuity based on workload
- Create custom staffing/ acuity tool
- Test/validate tool and adjust as needed
- Incorporate occupancy (chair time) to identify trends
Customized daily staffing/acuity tool

Staffing Tool Monthly Summary

Daily Infusion Chair Occupancy

*average industry standard is 80% productive time per chair
Strategy to Improve Efficiency

- **Standardize Orders/ Documentation**
  - Establish an acceptable timeframe for reoccurring orders
  - Incorporate common orders (procedural pain prevention, flushes, pre-meds)
  - Create protocols for adverse event management
  - Standardize documentation per billing requirements

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### Standardized Orders
(currently 43 protocols)

<table>
<thead>
<tr>
<th>Protocol ID</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1001</td>
<td>Allopurinol</td>
</tr>
</tbody>
</table>
Strategy to Improve Efficiency

- **Standardize Patient Education**
  - Develop process for creating handouts/resources
  - Involve staff in creation of patient education
  - Develop a standard curriculum for patient education (injection teaching)
  - Standardize documentation of patient education

<table>
<thead>
<tr>
<th>Standardized Patient Education</th>
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</thead>
<tbody>
<tr>
<td><strong>Informed Consent</strong></td>
</tr>
<tr>
<td><strong>Medication List</strong></td>
</tr>
<tr>
<td><strong>Side Effects</strong></td>
</tr>
<tr>
<td><strong>Dosage Information</strong></td>
</tr>
<tr>
<td><strong>Injection Site</strong></td>
</tr>
<tr>
<td><strong>Preparation and Administration</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standard Curriculum for Injection Teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infusion Center (IFC) Injection Education/Teaching Plan</strong></td>
</tr>
<tr>
<td>Content to Teach Patient Family</td>
</tr>
<tr>
<td>Identify purpose, dosage, frequency, side effects, food, drug interactions of medication (manage, classification, giving schedule, screening)</td>
</tr>
<tr>
<td>- Preparations (IV, IM, subcutaneous)</td>
</tr>
<tr>
<td>- Preparing medication</td>
</tr>
<tr>
<td>- Preparing drug solutions</td>
</tr>
<tr>
<td>- Preparing awaiting doses for medication</td>
</tr>
<tr>
<td>- Disposing of syringe/pipette</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

| Comments/Notes |  |
|  |

10/19/12
Strategy to Improve Efficiency

Technology
- Venous access assistive devices
- Vein Illumination Device
  ✓ Improved first attempt success rate
  ✓ Decreased number of attempts
  ✓ Decreased costs and nursing time

Vein Illumination Study Results

Primary Outcomes:
✓ 1st attempt success rate increased by 5% (85% to 90%)
✓ Number of attempts/patient reduced from 1.27 to 1.14

Secondary Outcomes:
✓ 3 or > attempts decreased by 4% (6.3% to 2.3%)
✓ Reduced costs of labor & supplies by $4.25 per patient (> $19,000 annual savings)
✓ Anecdotal reports of increased satisfaction

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>1st attempt</th>
<th>2 attempts</th>
<th>3 or &gt; attempts</th>
<th># of attempts per patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>443</td>
<td>63.0%</td>
<td>16.9%</td>
<td>16.9%</td>
<td>1.27</td>
</tr>
<tr>
<td>Experimental</td>
<td>270</td>
<td>70.0%</td>
<td>9.5%</td>
<td>19.5%</td>
<td>1.14</td>
</tr>
</tbody>
</table>

Graph showing a 4% improvement in 3 or > attempts from February 2009 to December 2009.
Study Implications

PURPOSE: assess impact of a vein illumination device on first attempt success rate & number of attempts required for insertion of a peripheral intravenous (IV) catheter in pediatric patients

Vein illumination:
- Improves 1st attempt success
- Decreases number of attempts
- Preserves veins
- Increases efficiency & proficiency
- Ensures proper & efficient use of resources
- Decreases unnecessary & costly procedures
- Improves satisfaction

- Decreases costs
- Enhances the IV experience
- Promotes building of trust, cooperation & confidence
- Supports high-quality care & outcomes
- Complies with practice standards

Study Implications

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Summary of Strategies for Success

- Evidence-based concepts
  - Space design
  - Technology

- Standardize / Customize
  - Visit types
  - Scheduling/ Benefits verification
  - Billing
  - Identifying staffing needs (acuity tool)
  - Orders
  - Documentation (critical for reimbursement)
  - Patient education

Additional Strategies for Success

- Recruit the "right" staff
  - Maximize experience

- Facilitate development of experts
  - Designate staff to specific tasks

- Market your services
  - If you build it they will come, BUT only if they know about it
  - Remain alert to changing needs

- Develop collaborative partnerships
  - Pharmacy
  - Referring services/ physicians
  - Home Health
Top 3 infusion visits:
1. Steroids
2. Biologics (Mab's; IVIG)
3. Enzyme Replacement Therapy

FY2012 activity: 4,581 visits
* Full year in expanded space

System-wide Infusion Services Growth

System-wide Infusion Services Growth

References


