



ASCO's Quality Training Program

Project Title:

Prevention of Extravasations of Anticancer Therapy in the Oncology Clinic
Infusion Patient

Presenter's Name:

Lisa Ciafre, RN, MSN, Director of Quality (promotion)

Matthew Bigbee, Senior Data Analyst

Institution:

Allegheny Health Network Cancer Institute

Date:

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Institutional Overview

Allegheny Health Network Cancer Institute is an integrated cancer program that includes 2 regional academic centers, 5 comprehensive cancer centers, 17 community-based clinics, and 11 radiation oncology centers.

Services include medical, surgical, gyne, and hematology oncology including cellular transplant.

2019 expansion plans:

- Opening of 2 comprehensive centers (includes radiation oncology and community based clinic at each location)
- 1 community based radiation oncology center
- 2 community based clinics

Team Members

Role	Name	Job Function
Project Sponsor#	David Parada, MD	Cancer Institute Chairperson
Team Leader+	Anna Vioral	Director of Oncology Practice and Professional Development
Core Team Member*	Mathew Bigbee	Senior Data Analyst
Core Team Member* (if applicable)	Lisa Ciafre	Director of Quality
Facilitator	Lisa Ciafre/Matt Bigbee	Team member who facilitates the team meetings to optimize group processes
Other Team Member^	Ali Amjad	Medical Oncologist
	Hashem Younes	Medical Oncologist
Other Team Member^	Kristen Tavernaris	Risk Management
Other Team Member^	Patricia Reiser/Rose Dziobak	VAT RN
Other Team Member^	Chelsea Nee	Clinic Nurse Manager Mellon Office
Other Team Member^	Courtney Sheerer	Clinic Infusion Nurse Mellon Office
Other Team Member^	Raven Lowery	Clinic Infusion Nurse Mellon Office
Other Team Member^	Dana Haines	Clinic Infusion Nurse Mellon Office
Other Team Member^	Emily Graham	Pharmacist Mellon Office
QTP Improvement Coach	Holley Stallings	Provides remote support to the team regarding the science of quality improvement and participation in the QTP.

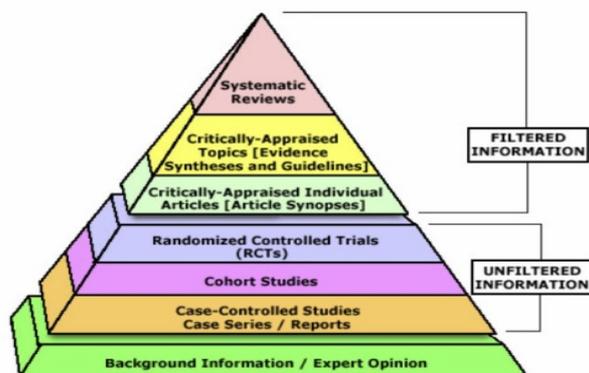


Problem Statement

The Allegheny Health Network Cancer Institute Medical Oncology Clinic's extravasation rate January 2017- September 2018 was 0.12%. An extravasation results in negative patient experience and outcomes related to increased pain, tissue injury, and inappropriate medication administration.

Aim Statement

By end of calendar year 2019, the number of peripheral anticancer therapy extravasation events will be equal to or less than the benchmark* of 0.09% with a stretch goal of zero.



Benchmark established from a cohort study. Low level, however only evidence identified

*Rose, J. et al; *Chemotherapy Extravasation: Establishing a national benchmark for incidence among cancer centers* CION.ONS.ORG



Measures – Outcome

- **Measure:** The number of extravasations in the identified patient population
- **Patient population:** Patients that receive the following anticancer therapy agents: bendamustine, mechlorethamine, carmustine, teniposide, vinblastine, vincristine, vinorelbine, daunorubicin, doxorubicin, epirubicin, idarubicin, dactinomycin, mitomycin, mitoxantrone, docetaxel, paclitaxel, paclitaxel protein bound particles, oxaliplatin, and etoposide.
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- **Calculation methodology:**
 - Numerator: Number of extravasations of above medications
 - Denominator: Number of infusions of above medication
- **Data source:** EPIC and RL6 Event Reporting
- **Data quality(any limitations):** Number of events is dependent on staff reporting (QI project in place and effective)



Measures – Education

- **Measure:** % of AHNCI nurses receiving education
- **Patient population:** n/a
- **Calculation methodology:**
 - Numerator: # of AHNCI nurses receiving education
 - Denominator: # of AHNCI nurses on staff
- **Data source:** manual tracking of progress
- **Data quality(any limitations):** n/a
- At baseline, this measure is at 0% (0/120 nurses), because the education is new



Measures – Standardize Catheters

- **Measure:** % of AHNCI medical oncology sites using standard catheters
- **Patient population:** n/a
- **Calculation methodology:**
 - Numerator: # of AHNCI medical oncology sites using standard catheters
 - Denominator: # of AHNCI medical oncology sites
- **Data source:** manual tracking, audit to confirm standardization
- **Data quality(any limitations):** n/a
- At baseline, this measure is at 25% (4/16 sites), because a few sites already use the catheters of choice



Measures – Standardize IV Start Kit

- **Measure:** % of AHNCI medical oncology sites using standardized IV start kits
- **Patient population:** n/a
- **Calculation methodology:**
 - Numerator: # of AHNCI medical oncology sites using standardized IV start kits
 - Denominator: # of AHNCI medical oncology sites
- **Data source:** manual tracking, audits to confirm standardization
- **Data quality(any limitations):** n/a
- At baseline, this measure is at 0% (0/16 sites), because no sites are currently using the IV start kits of choice

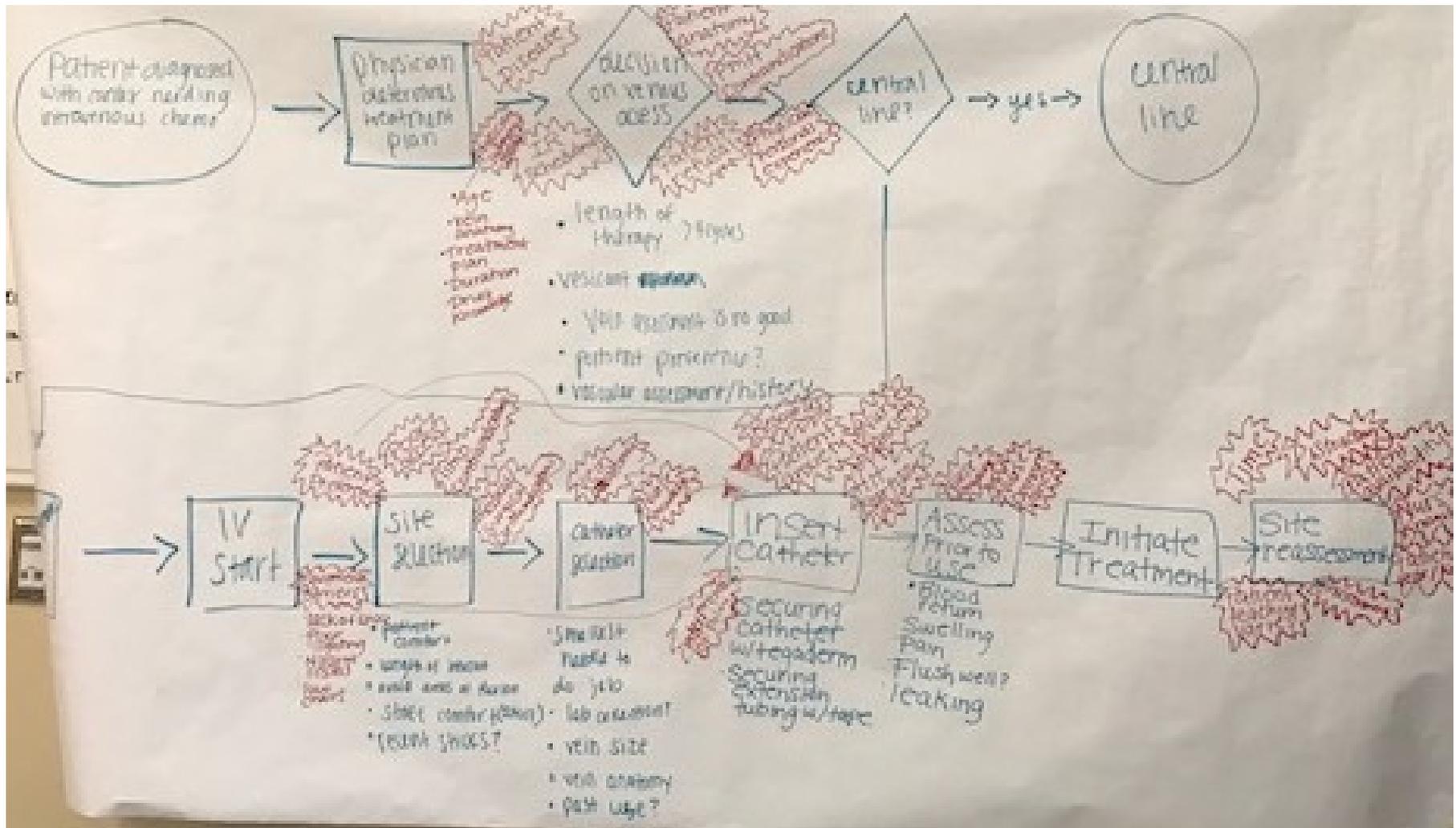


Baseline Data

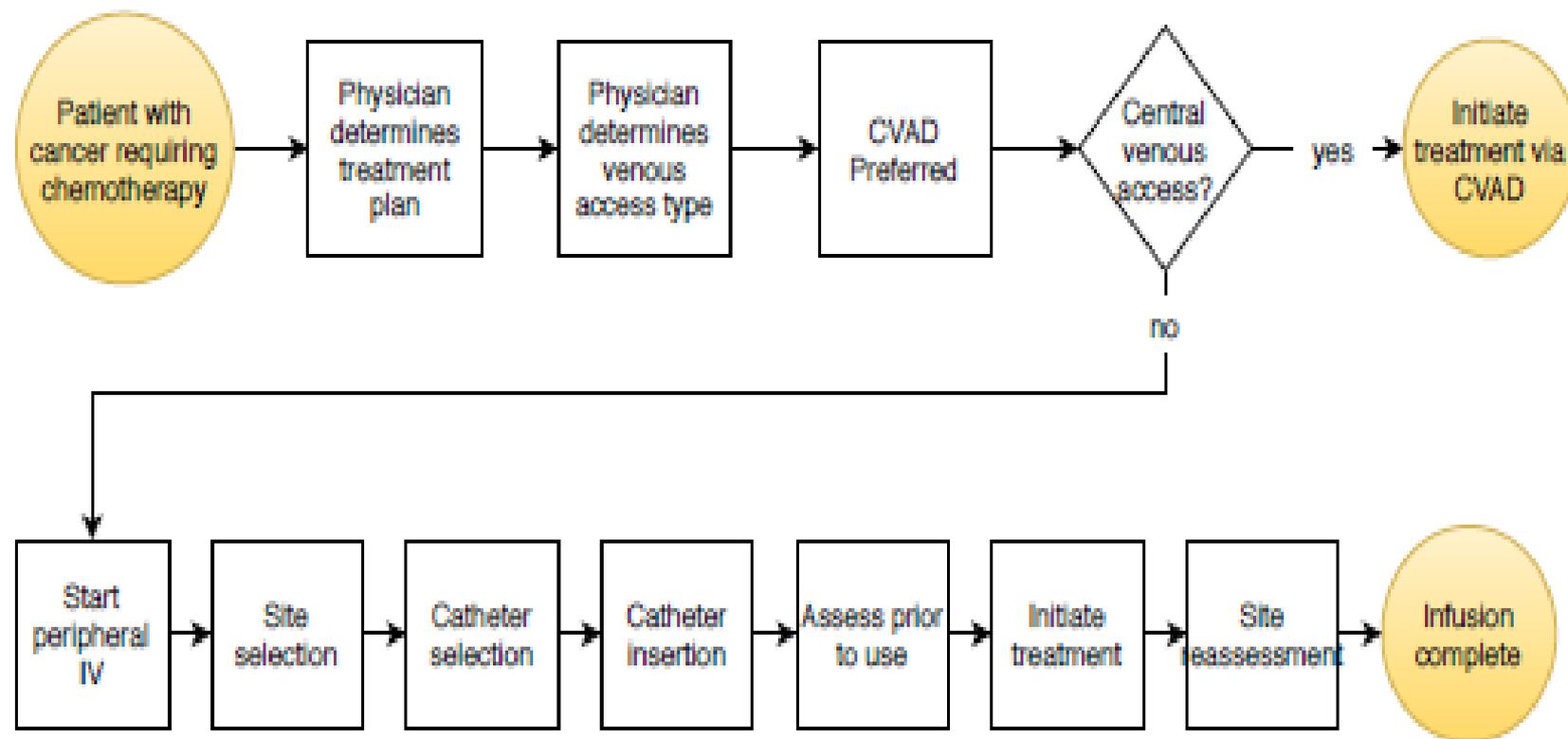
January 2017 through September 2018 data revealed an extravasation rate of 0.12%:

25 extravasations/20,605 infusions

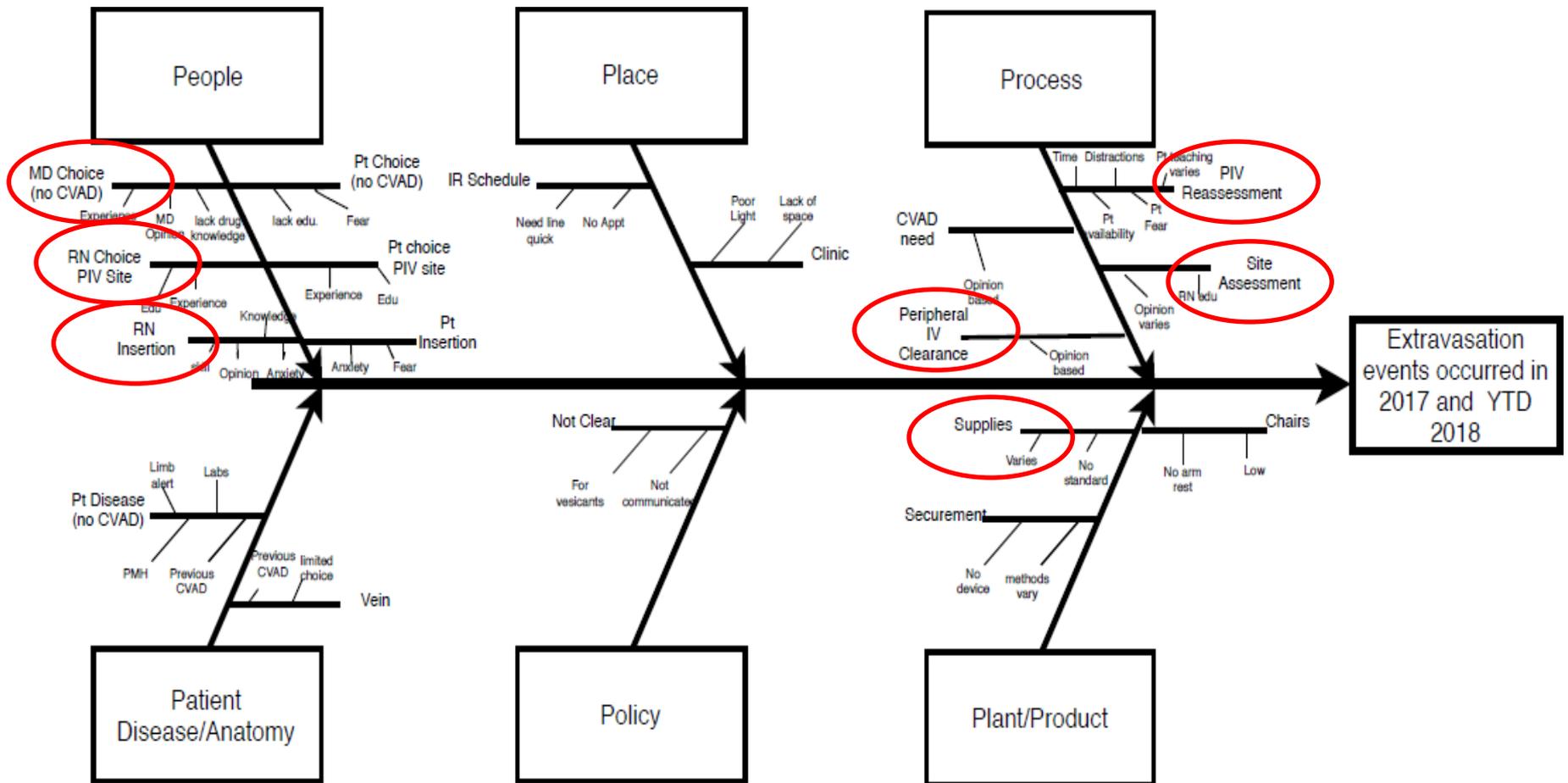
Our Process Tool



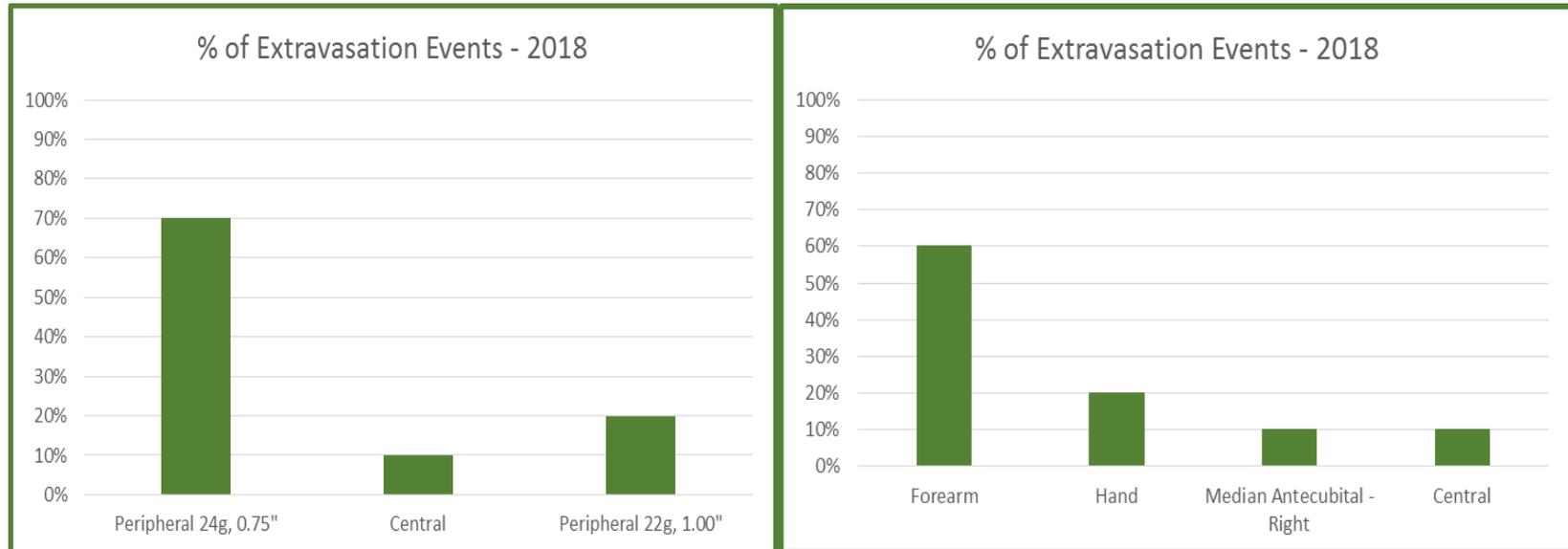
Process Map



Cause & Effect Diagram



Diagnostic Data-AHNCI Events



Summary: Most extravasation events occurred peripherally in the forearm with a 24g, 0.75" catheter

Hypothesis: 0.75" catheter may not be adequate length to safely access forearm veins due to increased depth

EBP: No literature exists linking a particular length/gauge catheter for each site therefore, a hard stop of eliminating all $\frac{3}{4}$ " catheters is not recommended.

Choosing the smallest gauge catheter with shortest length for the prescribed therapy is recommended.

Intervention: Train nurses in vein assessment and catheter selection



Diagnostic Data-Observations

- Prior to June 2018, there was not a formal didactic course related to IV insertion or vein assessment
- Insertion technique and knowledge is dependent on individual experiential learning
- Practice varied among nurses related to:
 - Catheter selection
 - Site selection
 - Patient education

Prioritized List of Changes (Priority/Pay –Off Matrix)

High Impact	Nurse Skill/knowledge	Vascular Access Assessment Tool Vein Assessment Tool
	Standardization of Catheters Standardization of IV Supplies	
Low		
	Easy	Difficult

PDSA Plan (Test of Change)

Date of PDSA Cycle	Description of Intervention	Results	Action Steps
January 2019	Improve nurse skill/knowledge	Cycle 1: Pending	Education to all nurses: <ul style="list-style-type: none">• Vein assessment• Site selection• Catheter selection• Patient education
January 2019	Standardize Catheters	Cycle 1: Pending	Ensure all clinics utilize the same catheters
January 2019	Standardize IV Start Supplies	Cycle 1: Pending	Ensure all clinics utilize the same process/supplies for PIV
TBD	Vascular Access Assessment Tool	Cycle 2: Pending	<ul style="list-style-type: none">• EBP review• AHN VAT Committee
TBD	Vein Assessment Tool	Cycle 2: Pending	<ul style="list-style-type: none">• EBP review• AHN VAT Committee



Change Data

- Currently in the “Do” Phase of PDSA
- Implementing first changes in January
- Change data pending at this time



Conclusions

The QTP has proven to be a catalyst in change for the AHN Cancer Institute team. The main pearls of wisdom achieved are the following:

- The importance of change decisions be made by frontline staff
- The importance of data – we realized that our baseline personal opinions regarding the cause of our extravasations was not supported by the data
- The importance of EBP when creating change – our first thought was to eliminate all 0.75” catheters which was not supported by evidence



Next Steps/Plan for Sustainability

Standardization of processes and improved knowledge and skill will assist with sustainability by creating a consistent foundation to investigate opportunities in the future.