



Dialysis
EDUCATION
SERVICES LLC
EXPERIENCED EXPERT INSTRUCTION

Venous Needle Dislodgement

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31st NANT Annual Symposium

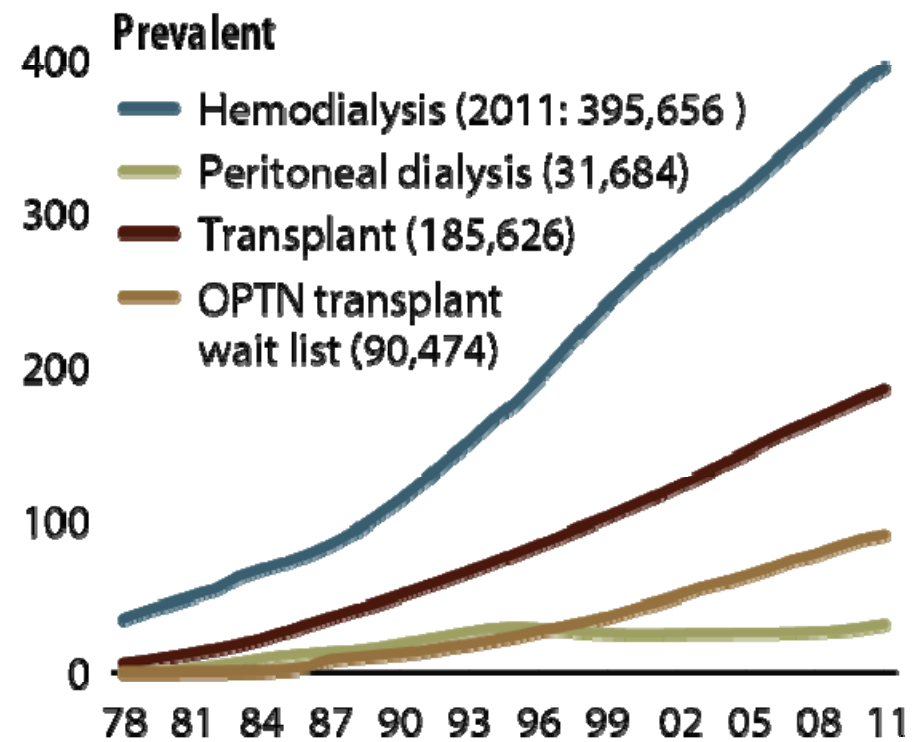
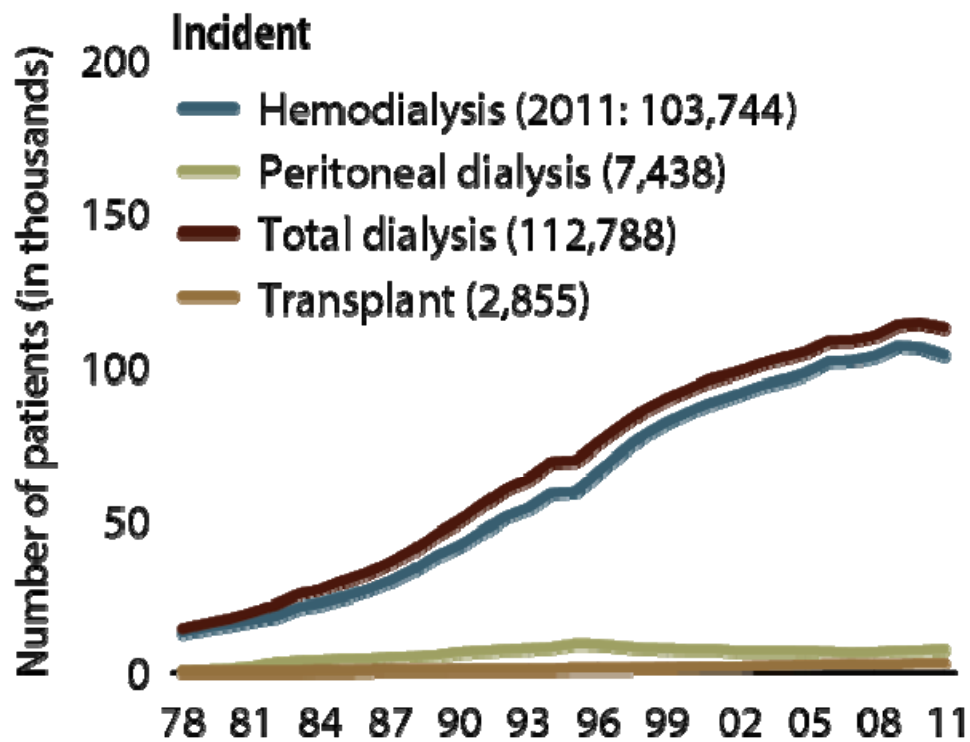
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Overview

- Background
 - Culture of Safety
 - Treatment of VND
 - Risk Factors and Best Practices
 - Education and Tools
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Background (U.S. Renal Data System, 2012)



Background (con't)

- Research Indicates VND as Low Concern (Hurst, 2012)
 - Heightened Morbidity/Mortality Without Early Detection and Treatment (Veterans Administration Central Office, 2008)
 - 18.9% Seldom or Never Concerned
 - 200 Venous Needles Dislodge Per Day (Hurst, 2011)
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Background (con't)

➤ **Consequences**

- ✓ 2 Serious Adverse Outcomes Per Day (Hurst, 2011)
- ✓ 2 Deaths Per Week Resulting From VND (Hurst, 2011)
- ✓ 414 Episodes of Serious VND 10-33% Mortality Rate= \sim 136 Deaths Linked to VND
(Sandroni, 2008)
- ✓ Lack of Exact VND Figures

The data set is made up of voluntary reports. Presentation of this data is not intended as representative of entire VND occurrence rates.

Background (con't)

➤ **Costs**

- ✓ Medical Care (Hurst, 2011)
 - ✓ Lost Treatments
 - ✓ Patient's Loss of Personal Income (CMS, 2011)
 - ✓ Liability Claims (Fields, 2010)
 - ✓ Brand Image Damage
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A Culture of Safety

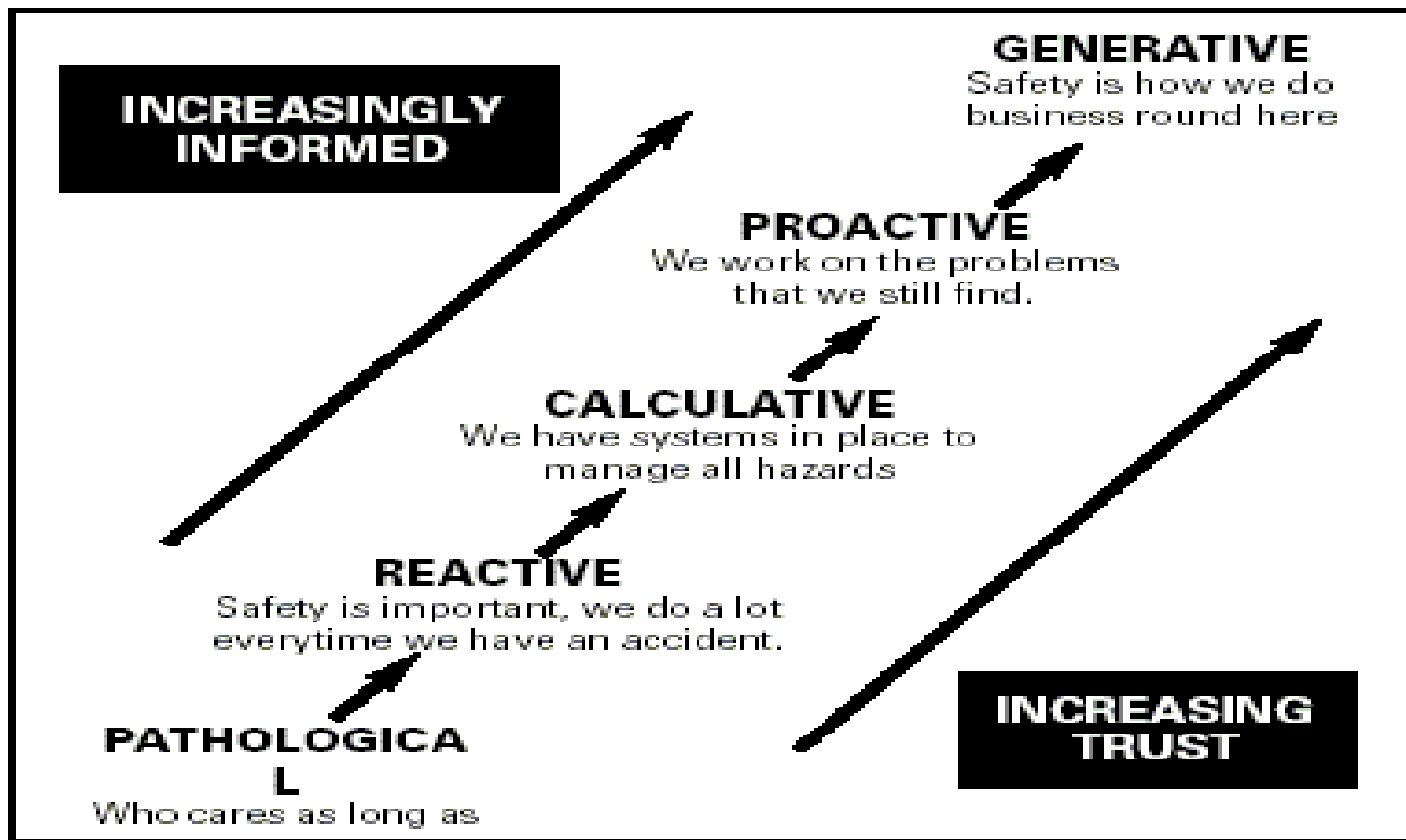
➤ ***Individual and Group***

- ✓ Values
 - ✓ Attitudes
 - ✓ Perception
 - ✓ Competencies
 - ✓ Patterns of Behavior
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A Culture of Safety

- Acknowledgment of the high-risk nature of an organization's activities and the determination to achieve consistently safe operations.
 - A blame-free environment where individuals are able to report errors or near misses without fear of reprimand or punishment.
 - Encouragement of collaboration across ranks and disciplines to seek solutions to patient safety problems.
 - Organizational commitment of resources to address safety concerns.
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Safety Cultures



Treatment

- ✓ Stop Blood Pump and Clamp Venous Line
 - ✓ Call for Help, Don PPE
 - ✓ Locate and Secure Dislodged Needle
 - ✓ Cover Site of Dislodged Needle and Apply Pressure
 - ✓ Return Blood Through Arterial Needle at Low BFR
 - ✓ Treat Symptoms and Replace Volume
 - ✓ Draw Labs and Assess Blood Loss
 - ✓ Report and Document Event
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Risk Factors and Best Practices

➤ ***Insufficient Staff Ratios*** (Mora-Bravo et al., 2008)

- ✓ Short Handed
- ✓ Patients Requiring Closer Attention
- ✓ Long Breaks Leaving Double Coverage
- ✓ Lack of Attention on Clinic Floor

➤ ***Best Practices***

- ✓ 4-to-1 Ratio (Van Waeleghem, 2008)
- ✓ 2-to-1 Ratios for High-Risk Patients
- ✓ Costs of VND Outweigh the Cost of Increased Staffing

Risk Factors and Best Practices

- ***Inadequate Fixation***
 - ***Ineffective Preparation of Access Site***
 - ✓ Individual Preference (Patient or Provider)
 - ✓ Excessive Sweating, Wet Access
 - ***Poor Attention to Taping***
 - ***Difficult Access Resulting in Compromised Fixation***
 - ✓ Sores, Thinning, Protrusions, Hairy Access, Skin Allergies
 - ✓ Elbow and Upper Arm Access
 - ✓ Deep Vessels
 - ✓ Propped Needles



Risk Factors and Best Practices

- **Best Practices** (Van Waeleghem, 2008)
 - ✓ Wash, Dry and Remove Residual Tape Residue
 - ✓ Chevron Technique
 - ✓ Consider Gentler Tape
 - ✓ Discourage Tapping
 - ✓ Re-Tape When Necessary
 - ✓ Longer Needles High Quality Tape
 - ✓ Follow Taping Protocols
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Risk Factors and Best Practices

- ***Inadequate Securement of Bloodlines***
 - ✓ Lines Placed Without Slack
 - ✓ Lines Across the Body

- ***Best Practice***
 - ✓ Machine on Same Side as Access
 - ✓ Anchor to Patient
 - ✓ Clips on Blood Lines
 - ✓ Slack for Movement (Van Waeleghem, 2008)



Risk Factors and Best Practices

- **50% Obstructed View of Vascular Access** (Veterans Administration Central Office, 2008)
 - ✓ Covering up With Blanket
 - ✓ Clinician Not in Visual Range

- **Best Practice** (Renal Physicians Association, 2010)
 - ✓ Patient and Clinician Education on Access Visibility
 - ✓ Keep Access Uncovered and Unobstructed
 - ✓ Routine Access Checks Every 15 Minutes



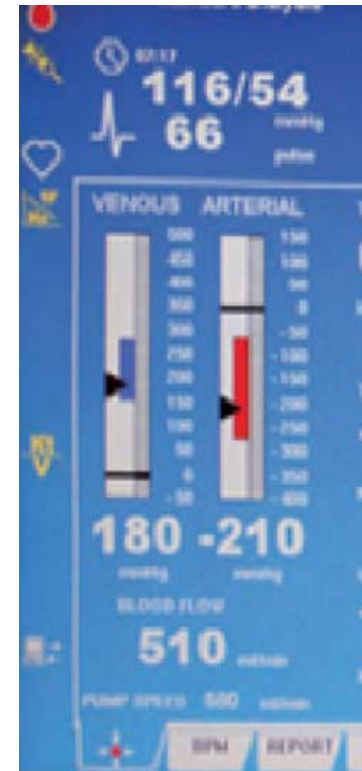
Risk Factors and Best Practices

- ***Failed Mechanical Detection*** (Hurst, VND 2012)
 - ✓ Untested Machines
 - ✓ Wide Alarm Windows (Van Waeleghem, 2008)
 - ✓ Low Pressure Access in 50% of Dialysis Patients
 - ✓ Smaller Gauge Needles=High Resistance (Polaschegg, 2010; Hurst, 2011)
 - ✓ To 10 Technology Hazards-Nuisance Alarm Fatigue (ECRI, 2012)

Risk Factors and Best Practices

➤ **Best Practice**

- ✓ Set tight asymmetric venous pressure limits (Van Waeleghem, 2008)
- ✓ Educate staff on machine limitations
- ✓ Ensure clinic policy on response to all alarms
- ✓ Additional Measures for:
 - ✓ Access pressure <30mm/hg (Polaschegg, 2010).
 - ✓ Small bore needles



Patient Requiring Close Monitoring

- ❑ Patient's not fully conscious or very quiet (often elderly) patients who do not speak up when something is wrong.
- ❑ Patients who consistently ignore the need to keep their vascular access uncovered (e.g. by pulling a blanket over it).
- ❑ Patients with small blood leakage along the venous needle (this could be a result of proximal stenosis, central venous stenosis or a high dose of heparin).
- ❑ Patients with difficult access (such as deep angle of cannulation, difficult location of access).
- ❑ Patients with excessive hair and patients prone to sweat (such as diabetics in case of hypoglycemia).
- ❑ Patients who are allergic to standard tape used to secure venous needles.
- ❑ Patients who consistently ignore the need to keep their vascular access uncovered (e.g. by pulling a blanket over it).
- ❑ Patients who perform home dialysis alone or overnight.

Best Practices

- ▣ Enhanced Staffing Ratios
 - ▣ Consistent Taping and Securement
 - ▣ Blood Loss Monitors
 - ▣ Employ additional precautions for patients with mental, cognitive, and neurologic impairments, and those with dementia that are at particularly high risk for VND. This might include additional staffing, blood loss monitors and other best practices mentioned throughout this paper.
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Education and Tools

✓ **Staff**

- Annual Education
- VND as Part of Culture of Safety
- Analysis of Risk Factors and Best Practices

✓ **Patient**

- Access Visibility and Observation
 - Report Appropriately
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Conclusion

- Overlooked Research
 - All Hemodialysis Patients are at Risk
 - Serious Consequence
 - Increase Staff Vigilance
 - Improved Staff/Patient Education
 - VND Addressed in Culture of Safety
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Thank You!!!



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References

Amgen. (2011). *Important Information about EPOGEN[®] Indication*. Retrieved from <http://www.epogen.com>

Andrews, C. (2011) *Communicating Risks and Benefits: An Evidence-Based User's Guide, Warnings and Disclosures*. Marquette University. Ch 15;149-161. Retrieved from <http://epublications.marquette.edu> (<http://bit.ly/TnackJ> shortened url).

CMS. (2012). Department of Health and Human Services, Centers for Medicare & Medicaid Services, Medicare Learning Network. *Payment System Fact Sheet*. Retrieved from http://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/End-Stage_Renal_Disease_Pro prospective_Payment_System_ICN905143.pdf

References

ECRI Institute. (2012). *Top 10 Health Technology Hazards*. Retrieved from www.ecri.org/2012_Top_10_Hazards

EDTNA ERCA. (2010). *Venous Needle Dislodgement Risk Assessment*. Retrieved from <http://www.redsensemedical.com/Filer/downloads/Assessment-of-the-risk-for-a-serious-Venous-Needle-Dislodgement-incident.pdf>

Fields, R. (2010). *When Needles Dislodge, Dialysis Can Turn Deadly*. ProPublica. Nov. 10, 2010. Retrieved from <http://www.propublica.org/article/when-needles-dislodge-dialysis-can-turn-deadly>

References

- Mora-Bravo, F.G, Mariscal, A, Herrera–Felix, J. P., Magaña, S, De-La-Cruz, G, Flores, N, Rosales, L, Franco, M, and Pérez-Grovas, H. (2008). Arterial line pressure control enhanced extracorporeal blood flow prescription in hemodialysis patients. *MC Nephrology*, 9:15.
- Hurst, J. (2011). Venous Needle Dislodgement-A Universal Concern. *European Nephrology*, 5(2):148–51.
- Hurst, J. (2009). Venous Needle Dislodgement. *Renal Business Today*, Retrieved from www.renalbusiness.com
-

References

Kampinski, Charles. *Representative Recoveries of Charles Kampinski*. Retrieved from <http://www.kampinskischneider.com/PracticeAreas/Negligent-Health-Care-Centers-Testing-Labs.html>.

Lascano, M. (2011). *Cleveland Clinic-Keeping Kidney Patients Safe*. Available at: <http://www.kidneypatientsafety.org/bestpractices.aspx>

Moses, S. (2011). *Hemorrhage Evaluation*, Family Practice Notebook. Retrieved from www.fpnotebook.com?ER?FEN?HmrhgEvltn.htm.

References

- OECD. (2011). Treatment of renal failure (dialysis and kidney transplants) in *Health at a Glance 2011: OECD Indicators*, OECD Publishing. Retrieved from http://dx.doi.org/10.1787/health_glance-2011-36-en
- Ogden C.L., Carroll, M.D., Kit, B.K., Flegal, K.M. (2012). Prevalence of obesity in the United States, 2009–2010. *NCHS Data Brief*, no 82. Hyattsville, MD: National Center for Health Statistics.
- Pennsylvania Patient Safety Authority. (2010). Hemodialysis Administration: Strategies to Ensure Safe Patient Care. *Pennsylvania Patient Safety Advisory*, 7(3):87-96.

References

- Polaschegg, H. (2010). Venous Needle Dislodgement: The Pitfalls of Venous Pressure Measurement and Possible Alternatives, A Review. European Dialysis and Transplant Nurses Association/European Renal Care Association. *Journal of Renal Care* 36 (1), 41-48.
- Renal Physicians Association. (2012). *Patient Safety Events*. Retrieved from <http://www.kidneypatientsafety.org/events.aspx>
- Renal Physicians Association. (2010). *Preventing Venous Needle Dislodgement Is Key to Keeping Kidney Patients Safe*. Patient Safety Education Modules. Retrieved from <http://www.kidneypatientsafety.org/page.aspx?id=68>

References

- Sandroni, S, Sherockman, T, Hays-Leight, K. (2008). Catastrophic Hemorrhage from Venous Needle Dislodgement during Hemodialysis: Continued Risk of Avoidable Death and Progress toward a Solution. Presented at ASN/Renal Week, Philadelphia, Nov 2008.
- U.S. Department of Health and Human Services. U.S. Food and Drug Administration, Manufacturer and User Facility Device Experience. Database search terms 'needle dislodgement, dialysis' '1999-2012'. Silver Spring, Maryland (2012).
- U.S. Renal Data System. (2012) USRDS 2012 Annual Data Report: Atlas of Chronic Kidney Disease and End-Stage Renal Disease in the United States, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, 2012. Ch. 1. *Incidence, Prevalence, Patient Characteristics & Modality*. Retrieved from http://www.usrds.org/2012/pdf/v2_ch1_12.pdf

References

- U.S. Renal Data System. (1994). *USRDS 1994 Annual Data Report: Atlas of Chronic Kidney Disease and End-Stage Renal Disease in the United States*, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, 1994. Ch. 3. *Prevalence and Cost of ESRD Therapy*. Retrieved from <http://www.usrds.org/download/1994/ch03.pdf>
- U.S. Renal Data System. (1994). *USRDS 1994 Annual Data Report: Atlas of Chronic Kidney Disease and End-Stage Renal Disease in the United States*, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, 1994. Ch. 5. *ESRD Treatment Modalities*. Retrieved from <http://www.usrds.org/download/1994/ch05.pdf>

References

- Veterans Health Administration. (2008). *Patient Safety Advisory*. Veterans Health Administration Warning System. Retrieved from <http://www.patientsafety.gov/alerts/BleedingEpisodesDuringDialysisAD09-02.pdf>
- Van Waeleghem, J.P., Chamney, M., Lindley, E., Pancirova, J. (2008). Venous Needle Dislodgement: How to Minimise the Risks. *Journal of Renal Care* 34(4), 163-168.
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