



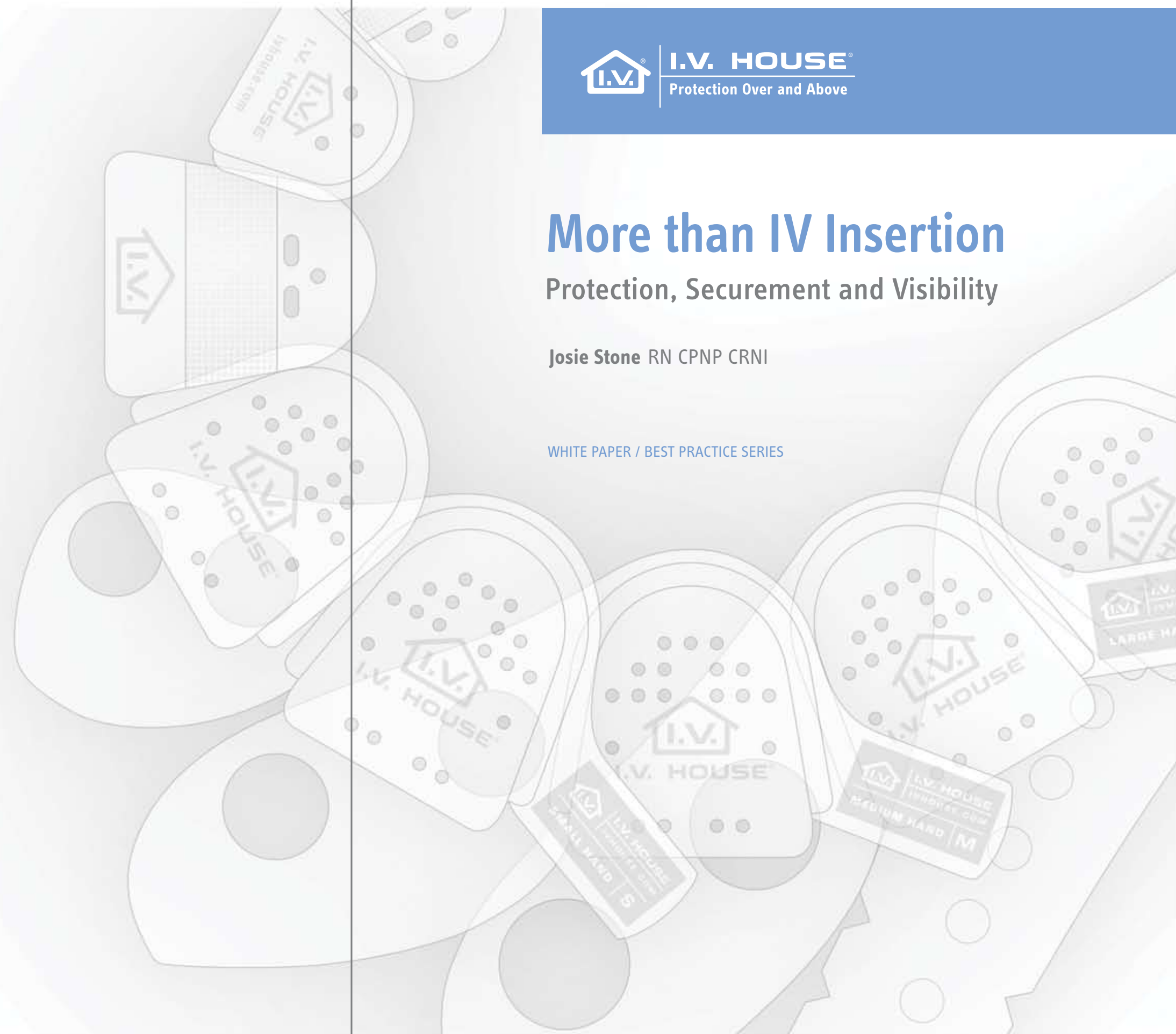
I.V. HOUSE
Protection Over and Above

More than IV Insertion

Protection, Securement and Visibility

Josie Stone RN CPNP CRNI

WHITE PAPER / BEST PRACTICE SERIES



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Short Biography

Josie Stone has been a Registered Nurse with over 30 years of experience, practicing in many specialty areas including Neonatal Intensive Care, Neonatal Transport of the Sick Newborn, Obstetrics, Pediatrics, Critical Care, and Hospital Administration.

Additionally she received her Pediatric Nurse Practitioner License in 1982.

She currently has her own education and consulting business.

She has been closely involved for many of those years in vascular access practice and product development, and has long been a clinical educator for this specialty area. Her initial involvement with IV catheters of all kinds started with the neonatal population but expanded through the years to all ages and she speaks on these topics to both National and International audiences.

She is intensely interested in, and committed to, educating all clinicians to recognize the important role they must play in assessing their patient's needs regarding infusion therapy, selecting the appropriate devices and managing those devices for safe and efficacious outcomes.

Josie has been very involved with Vascular Access and Infusion organizations and is certified as an INS (Infusion Nurses Society) CRNI.

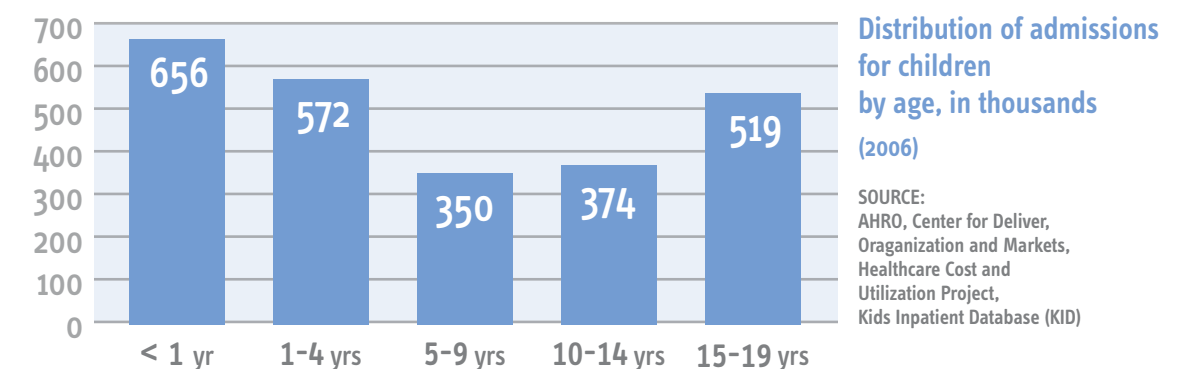
She is a member and Past President of AVA (Association for Vascular Access) and currently serves on their Global Policy Council.

More than IV Insertion

Protection, Securement and Visibility

I. INTRODUCTION

- Recent statistics show that in 2006 over 38 million patients were admitted to U.S. hospitals. Of this number, 2.1 million were children under 17 years of age (exclusive of normal newborn stays).
- It is estimated that greater than 90% of hospital stays involve the use of infusion therapy which would imply that a staggering 1.8 million plus infusion devices are expected to be placed in Pediatric patients alone this year.
- The short peripheral infusion device (PIV) is the most commonly used device and over 200 million were projected to be sold to the acute care market in 2008 alone. This leaves a huge ratio of discrepancy of devices used versus patients hospitalized and would strongly suggest that patients are receiving multiple infusion device replacements in the course of their IV therapy regime.
- Current research shows that placement of infusion devices into the vascular system is not the benign practice frequently assumed to be. As a result medical and clinical practice has directed serious attention over the past few years to education and to the development of Standards and Guidelines to ensure safe and competent practice.
- Specialized IV teams have been instituted in some instances to upgrade the practice, with promising results, yet the risks accompanying vascular access remain even today and extreme vigilance must accompany these procedures at all times.



II. OBJECTIVE

To explore the reasons for repeated IV replacements required before the end of therapy, or before standard rotation intervals, and to discuss a protection and stabilization option available today that has been shown to increase the dwell time of these crucial devices in the neonatal and pediatric population.

III. REALITY

Many factors influence the outcome of IV therapy for all ages but are of particular significance and extreme importance in the neonatal and pediatric population

- Size, accessibility and fragility of veins: just the action of insertion may “blow” the vein; veins may be difficult to locate due to chubby extremities; physical limitations like fractures may reduce options; previous cannulations may limit choices.
- Clinical diagnoses: the nature of the illness may have a deleterious effect on the vessels making them more susceptible to injury and fragility.
- Nutritional status: inadequate nutrition affects the ability of the body to handle invasive procedures.
- Skin integrity: a common finding in the smaller infants requiring extreme care with skin disinfection, insertion techniques and dressings.
- Type of infusate: chemical properties of solutions and medications can destroy vein wall integrity leading to phlebitis, infiltration or extravasation.
- Size of device: too large a device may reduce blood flow around the catheter and compromise the vessel wall.
- Duration of therapy: constant subjection of the veins to therapy can cause damage and loss of vessel wall integrity.
- Skill level of practitioner: not all are trained in the specific needs of this population.
- Care and maintenance: offers opportunity for serious consequences if not precisely managed, including catheter dislocation, introduction of infection, safety hazard to patient and practitioner, emotional and physical trauma to patient and family, additional cost, delay in drug delivery and accuracy.
- Susceptibility to complications: a weakened immune system increases the potential for infection; play activity or parental handling can increase the likelihood of dislodgement; smaller vessel size and low infusion rates can lend themselves to clotting; phlebitis and infiltration are the most common reasons for catheter removal in this population.
- Age and development: children have specific activity needs that subject devices to additional “wear” and “tear”. Protection and stability of the devices must be addressed.

An inadequately secured and protected catheter may lead to vein irritation, phlebitis and infiltration from catheter movement, create a potential for bacterial contamination, dislodgement and loss of site, catheter occlusion, safety issues, and disruption of therapy.

IV nursing as described in the INS Infusion Nursing Standards of Practice is a technical, highly specialized field that requires advanced clinical knowledge and technical expertise. Yet there continues to be variable and confusing practices around the country regarding the best way to manage infusion devices in the Neonatal and Pediatric population. Sometimes clinicians find change very challenging and may perpetuate habits with practices because they have “always been done that way” and are more comfortable with them. Today we live in a world of evidence based standards of care and “best practice” requiring the need to be open to change.

IV. CURRENT TRENDS AND TECHNOLOGY

IV therapy in children can be traced back for almost half a century and has moved from the era of steel winged needles to one of safety designed, soft, flexible, “over the needle” cannulae. Technology and innovation has also made available specialized catheters to meet the needs of the individual patient’s therapy; vein visualization devices; local anesthetics to help relieve pain; distraction techniques using Child Life experts; accurate delivery systems; programmed dosing; family involvement in their child’s care; and new dressings and stabilization devices.

Future trends will see an even greater need for infusion therapy with increased survival rates of smaller birth weight babies, greater use of nutritional support for prematurity and acute illness, newer generations of stronger and potentially more caustic medications requiring intravenous administration, increased use of infusion therapy in alternate site and home care, and a greater number of patients hospitalized for life style related illness.

V. CONSIDERATIONS

Even diligent attention may not be able to totally eliminate many issues surrounding IV therapy and potential loss of the IV site, but there is one factor which clinicians can always impact - **catheter protection and stabilization!**

In a recent study nurses clearly indicated that the top three most important considerations for successful IV device management were:

- protection of the catheter and site
- visibility of the IV insertion site
- dressing integrity and stability of the IV device

Focus should always be on preserving the site by preventing dislodgement of the IV but still accommodating for age appropriate activities, nursing care interventions and parental nurturing. These measures can reduce unnecessary pain and trauma; reduce potential for infection; maintain patient and clinician safety; provide safe, accurate and timely drug delivery; reduce liability issues; increase cost effectiveness; and improve time management.

Reality is that of the over 1.8 million short peripheral catheters to be placed in our neonatal and pediatric patients this year alone will, in addition to other factors, be expected to withstand thumb sucking, hair twirling, crying and temper tantrums, inquisitive “twiddling” of the device, spilled fluids, cuddling, active play, wagon riding, jumping, restless sleep, bathing, weighing, computer games, and more. A daunting task!

VI. SOLUTIONS

Despite recommendations for dressings and device securement in many publications including the INS Standards there continues to be a plethora of differing opinions as to what exactly is best! Certainly age and activity levels and all the aforementioned considerations make for extraordinary challenges. Dwell time of IV catheters in the NICU is likely measured in hours and in Pediatrics perhaps 2.0 - 2.5 days.

Certainly the need to **visualize** the IV site itself seems universal and demonstrated by the popular use of the semi-permeable occlusive transparent dressings. It is **how** the device and dressing are then secured to keep the catheter in place that is of question. Sometimes it is with varying amounts of transparent plastic or paper tape, arm boards and more tape, chevrons and gauzes, nets or stockinet sleeves, and worse, stretch type elastic style wraps.

Years ago nurses in the NICU, desperate to protect their IV's and reduce the use of tape, took medicine cups, cut them in half and protected the cut edges with cloth tape. The little half "dome" was then placed over the IV site to protect it.

I.V. House, an innovative company in Chesterfield, Missouri created from this early concept, products which provide the very protection for the IV site that clinicians have been looking for! They are easy to use, of simple design, inexpensive and durable, and specifically sized for your patient's needs. "Plan, Protect, Preserve" is their company by-line and those few words say it all. Most important, users of these products report universally increased success with catheter retention, and less need for unscheduled replacement.

VII. CONCLUSION

I.V. House offers products that provide solutions! Devices that can influence best practice standards; improve outcomes; meet the considerations outlined; solve problems; and above all offer safe and effective options for IV site protection. These innovative products have been carefully and deliberately developed with cooperation from clinicians across the country with a common goal of practice excellence.

In clinical practice responsibility lies in making choices to improve patient care when it is within our control. Sometimes a simple decision can impact that care in a very significant way. Repeated IV sticks are unacceptable today and current knowledge of vein pathology shows that an IV stick is never a benign event. Changes occur in the vein that can be damaging and sometimes irreversible, yet patients need infusion therapy.

Every IV placement can be challenging but using products designed to protect the site and the dressing can lead to that all important increased length of dwell that counts for so much and in so many ways.

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"We have been using the I.V. House product for all age groups at our institution for several years. It offers excellent protection for the IV site and prevents dislodgement from accidental bumping. It also reduces "twiddling" or "playing" with the dressing from the smaller patients. Additionally it allows good visualization for the frequent site assessments we require in all our pediatric patients."

Dana Etzel-Hardman RN MSN MBA CPN Training and Education Specialist,
Children's Hospital of Pittsburg, Pennsylvania



"After introduction of the I.V. House product at our institution we witnessed very positive outcomes in increased length of dwell time for the catheter, and increased patient satisfaction with the dressing. A financial benefit was realized and additionally parents gave positive feedback regarding the reduced need for IV sticks in their loved ones. It is now a Standard of Care at our facility."

Rayanne M. Wilson RN BSN MBA Nurse Manager,
Pediatric Medical Care Units,
CHRISTUS Santa Rosa Children's Hospital,
San Antonio, Texas

"We cover the IV site with an I.V. House in our NICU to help prevent trauma to the IV catheter and vein, thereby decreasing the risk of complications, such as infiltration, and potentially increasing the lifespan of the IV catheter."

Janet S. Pettit RN MSN NNP 45-bed NICU, Central California