
INTEROFFICE MEMORANDUM

TO: Jorge Moreno, Medical Director, Clinicas Mi Doctor, Fort Worth
FROM: Rebecca Wilson, Project Manager,
Victoria Watson, Project Materials Coordinator
Zeta Doe, Research Analyst
SUBJECT: Report for the Recommendation to Consider Investing in Portable Noncontact
Vein Finders for Clinical Venipuncture Procedure
DATE: 5 May 2015

This is a report on our research to determine the baseline requirements for implementing the use of portable noncontact vein finders in routine, clinical venipuncture procedures at Clinicas Mi Doctor, Fort Worth. The scope of our research includes faculty and patient attitudes, comparative effectiveness, and retail pricing for the recommendation to invest in portable noncontact vein finders.

To perform these tasks we conducted primary and secondary research. We studied the literature on vein illumination devices currently on the market, conducted price versus user satisfaction comparisons and brief interviews.

Our findings suggest the newest portable noncontact vein finder on the market, the VeinViewer® Flex. We find that the data supports the speculation that this device, stands out both for its usability and its increased potential to enhance customer satisfaction, improve faculty satisfaction and efficiency, and create a more sanitary environment. It would be ideal for everyday use in the clinical setting at Clinicas Mi Doctor, Fort Worth.

On the basis of these findings, we recommend that Clinicas Mi Doctor, Fort Worth proceed with budgeting efforts to purchase at least three (3) portable noncontact vein finders at an estimated cost of \$10,000.00 each within the next two (2) fiscal years. We further suggest that a new product research report be planned in the next year, focused on the VeinViewer® Flex. Ultimately, we would recommend the VeinViewer® Flex be implemented into the clinical venipuncture procedure within this office.

We appreciate the trust you have shown in including us in the initial stages of the product implementation study, and we look forward to working with you on continued other portions of the study. If you have questions or comments, please contact Rebecca Wilson at rebecca.wilson359@my.tccd.edu or (123) 456-7890.

REPORT FOR THE RECOMMENDATION TO CONSIDER
INVESTING IN PORTABLE NONCONTACT VEIN FINDERS FOR
CLINICAL VENIPUNCTURE PROCEDURES

PREPARED FOR: JORGE MORENO, MEDICAL DIRECTOR
CLINICAS MI DOCTOR
4200 SOUTH FREEWAY
FORT WORTH, TX 76115

PREPARED BY: REBECCA WILSON, PROJECT MANAGER,
VICTORIA WATSON, PROJECT MATERIALS
COORDINATOR
ZETA DOE, RESEARCH ANALYST

5 MAY 2015

TABLE OF CONTENTS

Abstract.....	2
Introduction.....	1
Methods.....	2
Primary Research Summary.....	2
Secondary Research Summary.....	2
Results.....	4
VeinViewer® Flex.....	4
Vein Viewer® Vision.....	5
AccuVein® AV400.....	5
VeinLite LED®.....	6
Conclusions.....	7
Glossary.....	8
Appendix.....	9
Primary Research Q&A of the Clinical Use of Portable Noncontact Vein Finders in the Marketplace Week of April 13-16, 2015.....	9
Purpose.....	9
Questions asked of the clinicians.....	9
Clinics Contacted by Zeta.....	10
Clinics Contacted by Rebecca:.....	11
Clinics Contacted by Victoria.....	12
Works cited.....	13
Table 1 Comparison of the Four (4) Top Portable Noncontact Vein Illuminators.....	3
Figure 1 VeinViewer® Flex Demonstration.....	4
Figure 2 VeinViewer® Vision.....	5
Figure 3 VeinViewer® Vision on stand.....	5
Figure 4 AccuVein® AV400.....	5
Figure 5 VeinLite LED® with plastic sleeve.....	6
Figure 6 VeinLite LED®.....	6

ABSTRACT

Various health conditions may reduce the availability of puncture sites on a patient. Repeated, unsuccessful attempts at venipuncture may reduce viable puncture sites, prolong the arm tourniquet time, or cause delayed or rescheduled procedures. Investing in portable noncontact vein finders used in a clinical setting will improve the nurse and patient experience and increase patient rotation times.

On the basis of these findings, we recommend that Clinicas Mi Doctor, Fort Worth proceed with budgeting efforts to purchase at least three (3) portable noncontact vein finders at an estimated cost of \$10,000.00 each within the next two (2) fiscal years. We further suggest that a new product research report be planned in the next (1) year, focused on the VeinViewer® Flex. Ultimately, barring product defect or stalled market availability, we would recommend the VeinViewer® Flex be implemented into the clinical venipuncture procedure within Clinicas Mi Doctor, Fort Worth.

INTRODUCTION

A common procedure that goes askew in medical clinics is venipuncture (blood draws). There is so much room for error because “venipuncture is the most common invasive medical procedure with an estimated 2.7 million procedures conducted every day in the United States alone” (AccuVein Launches). Repeated, unsuccessful attempts at venipuncture may reduce viable puncture sites or prolong the arm tourniquet time and result in rescheduled procedures. Failed attempts and delays heighten the anxiety in both care givers and patients. Futile venipuncture efforts also increase the time patients are in the office and increase administrative time spent in rescheduling the procedures. There are also a variety of health conditions, from obesity to tattoo coverage, which can limit puncture sites on a person. There are many times when certain appendages should not even be considered viable sites. "Certain areas are to be avoided when choosing a site: extensive scars from burns and surgery, sites with lymphedema, hematoma sites, extremities with IVs," and many other conditions (Klatt). The patient circumstances listed by Klatt are, unfortunately, not rare health conditions.

Vein illumination is the utilization of vein finder devices to illuminate or visually show veins that are viable for venipuncture procedure. The machines previously used can be so large or so expensive they are only purchased by hospitals or laboratories, and a fee is assessed when a clinician sends a patient for a procedure at those locations. Rebecca, Zeta, and Victoria recommend that that Clinicas Mi Doctor, Fort Worth proceed with budgeting efforts to purchase at least three (3) Vein Viewer® Flex portable noncontact vein finders at an estimated cost of \$10,000.00 each within the next two (2) fiscal years. We further recommend that a new product research report be planned in the next year, focused on the VeinViewer® Flex. Ultimately, we would recommend the VeinViewer® Flex be implemented into the clinical venipuncture procedure within Clinicas Mi Doctor, Fort Worth.

METHODS

The product research report originated because an area of possible efficiency enhancement within Clinicas Mi Doctor, Fort Worth was discovered. Research into considering investing in portable noncontact vein finders for venipuncture procedures was requested. Quantitative information was collected, analyzed and emphasized due to the hefty monetary investment in acquiring and implementing portable noncontact vein finders into the clinic's routine venipuncture procedures. Due to the lack of primary research results, there is a lack of qualitative information.

PRIMARY RESEARCH SUMMARY

After contacting more than thirty (30) comparable clinics (see Appendix) in the Fort Worth medical arena, most clinics would not divulge whether they use or have used these devices. The clinics quickly dismissed our attempts to do a comparison study. It should be noted that the listed specialized clinics all send their patients to specialty laboratories for bloodwork.

SECONDARY RESEARCH SUMMARY

Secondary research revolved around comparing the technical attributes of the four (4) portable noncontact vein finders currently on the market (see Table 1 below). Marketplace comparison of pricing was conducted using internet pricing searches. Consumer reviews were provided as feedback notes where the products were sold.

The assessments distilled into four (4) areas of comparison:

- Method used to illuminate the veins.
- Depth of illumination based on method used.
- Item use, if it is truly a noncontact device or simply a no skin contact device.
- Price versus user satisfaction.

Table 1 Comparison of the Four (4) Top Portable Noncontact Vein Illuminators

	Vein Viewer® Flex ^{a.}	Vein Viewer® Vision ^{c.}	AccuVein® AV400 ^{b.}	VeinLite LED® ^{d.}
Method used to illuminate the veins	Near-infrared light is absorbed by blood and reflected by surrounding tissue	LED light beams to create projection of vein pathways	Laser light beams to create projection of pathways	LED color contrast (red to find blue veins)
Depth of illumination based on method used	Deeper	Deepest	Least	Midrange
Item use, whether it is truly a noncontact device	Truly noncontact	Truly noncontact	Truly noncontact	Noncontact in the sense that a barrier is added between skin and device, usually plastic covering
Price versus user satisfaction	Unknown ~\$10,000.00 expected	~\$9,000.00 high	~\$2,000.00 High most widely used	~\$600.00 moderate to high

Source: Manufacturer's promotional pages
a. <https://www.christiemed.com/products/veinviewer-models/veinviewer-flex>
b. <http://pre5.accuvein.com/products/catalog/av400-vein-viewing-system/>
c. <https://www.christiemed.com/products/veinviewer-models/veinviewer-vision>
d. <https://www.veinlite.com/>

RESULTS

We sought to discover whether clinics in our operating area and comparable in patient load used portable noncontact vein finders for venipuncture procedures as a part their routine venipuncture procedures (for specific questions attempted, see Appendix). The qualitative, primary research is inconclusive. Whether or not using portable noncontact vein finders for venipuncture procedures would improve customer and faculty satisfaction and office efficiency cannot be supported by the data.

As the models of portable noncontact vein finders we compared became more expensive, they became more portable and totally noncontact. Furthermore, they became more accurate and the veins more easily seen on the more expensive models (see Table 1).

A possible limitation is that it may be preferred by clinics with inexperienced clinicians to add the expense of a stand for the portable devices. This would provide a hands free illumination of the puncture site. The actual puncture could be done one handed, but it would be best if the care giver would find the site using the vein finder in the “syringe” hand and palpitate it with the off hand. The device could then be set down, the syringe picked up and the puncture safely completed. No vein finder will take the place of professional judgment, and no vein illumination device can take the place of established techniques (i.e. palpitation) in all cases.

VEINVIEWER® FLEX



Figure 1 VeinViewer® Flex Demonstration
Source: <https://www.christiemed.com/products/veinviewer-models/veinviewer-flex> image gallery

The VeinViewer® Flex is a universal device that is useful on all patients. During the VeinViewer® Flex procedure, there is no use of consumables, the procedure requires no patient contact and has no heat, laser eye-safety or radiation issues. With HD imaging and exclusive Df2 (digital full field) technology, VeinViewer is the only vein illuminator that provides benefits for all patients during the entire Pre, During and Post vascular access procedure.

Projected near-infrared light is absorbed by blood and reflected by surrounding tissue.

The information is captured, processed and

projected digitally in real time directly onto the surface of the skin. [The VeinViewer® Flex] provides a real time accurate image of the patient's blood pattern.

This device is highly durable and portable and would be very useful in situations that are limited in space (i.e. small examination rooms, clinics with only hallway alcoves provided for data and sample collection, ambulances, etc.) and if speed of assessment is demanded.
(VeinViewer Flex)

VEIN VIEWER® VISION



Figure 3 VeinViewer® Vision on stand
Source: <https://www.christiemed.com/products/veinviewer-models/veinviewer-vision> image gallery

The VeinViewer® Vision model offers to-the bedside mobility, quick set up and an optimal hands-free solution. This device has a rapid set up time and can run on either battery or AC power. The Vision comes on a cart which is durable and allows for “Eyes On Patient™ hands-free technique.”

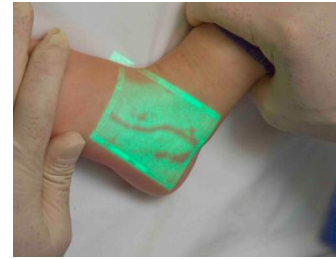


Figure 2 VeinViewer® Vision
Source: <https://www.christiemed.com/products/veinviewer-models/veinviewer-vision> image gallery

Projected near-infrared light is absorbed by blood and reflected by surrounding tissue. The information is captured, processed and projected digitally in real time directly onto the surface of the skin. It provides a real time accurate image of the patient's blood pattern.

VeinViewer patented technology, using AVIN™ (Active Vascular Imaging Navigation), allows you to see blood patterns up to 15 mm deep and clinically relevant veins up to 10 mm. With VeinViewer clinicians can see peripheral veins, bifurcations and valves and assess in real time the refill/flushing of veins. With visualization Pre-, During- and Post-procedure, clinicians can potentially avoid complications from accidental puncture. The total vascular access procedure is improved, not just the stick. (VeinViewer Vision)

ACCUVEIN® AV400

From the manufacturers of the first portable noncontact vein finder in 2009, the AccuVein® AV400 utilizes laser light beams to create a projection of the vein pathways on the surface of the skin in real time, allowing clinicians to verify vein patency and avoid valves or bifurcations. It is handheld and lightweight, weighing only 9.7 ounces (275g) [or or just over half a pound]. The AV400 Universal [illuminates the larger veins for use on the majority of patients] and inverse modes [illuminates the smaller veins for use on infants, children or the elderly, etc.] make the AV400 useful on a variety of patient types. With center line accuracy to the width of a human hair, the AV400 can detect veins up to 10 mm deep. More effective venipuncture procedures with less patient discomfort result in higher patient satisfaction, making it clear why many facilities have chosen to incorporate AccuVein into their standard of care. (AccuVein)



Figure 4 ACCUVEIN® AV400
Source: <http://trends.medicalexpo.com/products/accuvein-av400-winner-at-2014-prism-awards/> image gallery

VEINLITE LED®

The VEINLITE LED® system uses twenty-four (24) light emitting diodes (LEDs) to create a projection of the vein pathways. The device is composed of twelve (12) orange light-emitting diodes for the visualization of superficial veins and twelve (12) red light-emitting diodes to illuminate deep veins. This vein finder displays veins up to six (6) millimeters in depth. The device operates on a rechargeable battery. The VEINLITE LED® is in a C-shape for skin stretching, which prevents rolling of veins and allows for efficient needle insertion. (VeinLite)

This device is a portable vein illuminator but not entirely noncontact. They do not come in contact with the patients' skin. However, they require the use of plastic barrier covers (see figures 5 and 6).



Figure 5 VeinLite LED® with plastic sleeve

Source:

<http://www.medicaexpo.com/prod/veinlite/led-neonatal-transilluminator-84267-535883.html>
image gallery



Figure 6 VeinLite LED® disposable plastic covers

Source:

http://www.medicaexpo.com/prod/veinlite-84267.html#product-item_535883
image gallery

CONCLUSIONS

The VeinViewer® Flex was settled upon as the most useful tool for achieving the goals of office efficiency and faculty/patient satisfaction. Initially, the VeinViewer® Flex was not known to us. It is only being taken to market this year in 2015. However, based on the results of our primary research, Clinicas Mi Doctor, Fort Worth would be on the cutting edge of a higher standard of care for our patients if the decision is made to incorporate portable noncontact vein finders into the routine venipuncture procedures. Not one of the over thirty primary care clinics that we contacted could or would say they use vein finders as a part of their standard venipuncture procedures. Our recommendations solidified when we compared the technical offerings, price, and ease of use of the top four (4) portable noncontact vein illumination devices.

The VeinViewer® Flex seems to have all of the best features of the previous models of the VeinViewer® product line combined with innovations of the original AccuVein products. However, the VeinViewer® Flex is not yet on the market and we recommend a new product research report on this portable noncontact vein finder to ensure its quality, effectiveness, and pricing are in line with the needs of Clinicas Mi Doctor, Fort Worth.

It should be noted that additional qualitative, primary research should be included in the suggested future report. The faculty and patients of Clinicas Mi Doctor, Fort Worth should be interviewed with the following proposed line of questioning:

Faculty:

- Do you feel a new procedure is warranted?
- Have you heard of this new device? If so, would you recommend it?
- Have you personally used a portable noncontact vein finder? If so, was your experience positive or negative?

Patients:

- Have you had a portable noncontract vein finder used to find your veins during a venipuncture procedure? If so, was your experience positive or negative?
- Have you heard of this new device? If so, would you feel comfortable if it were used during a venipuncture procedure for you?
- Have you had poor experiences in the past when it comes to venipuncture procedures? If so, how did they locate your puncture site?

On the basis of these findings, we recommend that Clinicas Mi Doctor, Fort Worth proceed with budgeting efforts to purchase at least three (3) portable noncontact vein finders at an estimated cost of \$10,000.00 each within the next two (2) fiscal years. Three (3) devices would allow two (2) in daily rotation and one (1) as a backup. A new product research report should be planned in the next (1) year, focused on the VeinViewer® Flex to ensure product safety and necessity of purchasing the newest, most expensive portable noncontact vein finder. Barring product defect or stalled market availability, we would recommend the VeinViewer® Flex be implemented into the clinical venipuncture procedure within Clinicas Mi Doctor, Fort Worth.

GLOSSARY

Hematoma	A localized swelling filled with blood resulting from a break in a blood vessel
Lymphedema	Swelling, especially in subcutaneous tissues, as a result of obstruction of lymphatic vessels or lymph nodes, with accumulation of lymph in the affected region
Tourniquet	Any device for arresting bleeding by forcibly compressing a blood vessel, as a bandage tightened by twisting
Vein Illumination	The lighting up of a vein for inspection
Venipuncture	The puncture of a vein for surgical or therapeutic purposes or for collecting blood specimens for analysis

APPENDIX

PRIMARY RESEARCH Q&A OF THE CLINICAL USE OF PORTABLE NONCONTACT VEIN FINDERS IN THE MARKETPLACE WEEK OF APRIL 13-16, 2015

PURPOSE

The below question and answer survey was compiled to compare the use and satisfaction of portable noncontact vein finders among clinicians in the Fort Worth area. Over thirty (30) clinics in the Fort Worth area were contacted by Zeta, Rebecca, and Victoria.

QUESTIONS ASKED OF THE CLINICIANS

1. Does the clinic use a portable noncontact vein finder device?
2. If not, has the clinic considered it?
3. If not, what was the reasoning why (i.e. pricing, training, etc.)?
4. If so, which brand?
5. Is this the only brand the clinic has used?
6. How long have you used this device?
7. For what purpose do you use it (all venipunctures or only special circumstances)?
8. Do your clinicians find it easier than palpating by hand to find the veins?

CLINICS CONTACTED BY ZETA

1. Texas Injury Clinic
2121 N Main St
Fort Worth, TX 76164
(817) 624-7222
2. Women's Cntr of Tarrant County
1723 Hemphill St
Fort Worth, TX 76110
(817) 927-4040
3. TX Health Conv. Care Alliance
2401 Westport Pkwy Suite 140
Fort Worth, TX 76177
(817) 693-2500
4. Rosedale Cardiology
1050 W Rosedale St
Fort Worth, TX 76104
(817) 820-0141
5. Total Women Health Care
1327 Hemphill St # 101
Fort Worth, TX 76104
(817) 731-3936
6. Hulen Total Care PA
6049 S Hulen St
Fort Worth, TX 7613
(817) 346-3313
7. Medical Center of Ft. Worth
900 8th Ave
Fort Worth, TX 76104
(817) 347-4700
8. Nova Health Care Centers
3645 N Beach St
Fort Worth, TX 76137
(817) 759-0004
9. Healthfirst Service Inc
4450 Boat Club Rd
Fort Worth, TX 76135
(817) 698-8356
10. Rapha Medical Clinic
1SERVICES
6901 McCart Ave Ste 200
Fort Worth, TX 76133
(817) 292-2011
11. CareNow
1661 Eastchase Pkwy,
Fort Worth, TX 76120
(817) 459-2005

CLINICS CONTACTED BY REBECCA:

1. University Family Medical Center
117 University Dr
Fort Worth, TX 76107
(817) 338-0555
2. Diamond Hill Medical Center
2223 NE 28th St
Fort Worth, TX 76106
(817) 624-3193
3. Southside Medical Clinic Services
544 W Seminary Dr Ste B
Fort Worth, TX 76115
(817) 924-7978
4. JPS Health Network Community
Locations
1741 Blandin St
Fort Worth, TX 76111
(817) 702-8470
5. Recept Health Care
5500 E Loop 820 S Ste 102
Fort Worth, TX 76119
(817) 572-0009
6. Harrison at Heritage
4600 Heritage Trace Pkwy
Fort Worth, TX 76244
(817) 741-9360
7. Green Oaks Healthfirst Medical
Group
6825 Green Oaks Rd
Fort Worth, TX 76116
(817) 737-7000
8. Unt Health
1305 E Seminary Dr
Fort Worth, TX 76115
(817) 735-3627
9. Hantes Jeff Female Health
2600 Montgomery St
Fort Worth, TX 76107
(817) 731-3936
10. Pregnancy Help Center
7700 Camp Bowie West Blvd
Fort Worth, TX 76116
(817) 560-2226
11. PrimaCare Medical Center -
Colleyville
6000 Colleyville Blvd
Colleyville, TX 76034
(817) 328-3320

CLINICS CONTACTED BY VICTORIA

1. Advanced Choice Care
1829 8th Ave
Fort Worth, TX 76110
(817) 927-9988
2. JPS Health Network Community Locations
1513 E Presidio St
Fort Worth, TX 76102
(817) 702-8380
3. Supplemental Health Care
101 Summit Ave
Fort Worth, TX 76102
(817) 882-8874
4. Health Care Concierge
2501 Parkview Dr Ste 600
Fort Worth, TX 76102
(817) 306-1991
5. Pinnacle Health Care
1045 Foch St
Fort Worth, TX 76107
(817) 263-8808
6. Accommodating Healthcare Services
4200 South Fwy # 530
Fort Worth, TX 76115
(817) 339-6733
7. Affordable Health Benefits Group
3824 Fitzhugh Ave
Fort Worth, TX 76105
(817) 531-3790
8. Fort Worth Health Care Systems
1051 Haskell St Ste 200
Fort Worth, TX 76107
(817) 377-4011
9. Farm & Ranch Healthcare
2901 Riverglen Dr
Fort Worth, TX 76109
(817) 244-3949
10. F M Healthcare
1127 Oakland Blvd
Fort Worth, TX 76103
(817) 457-3853
12. Clinicas Mi DoctorFort Worth
Community Services Division
4200 South Fwy
Fort Worth, TX
(817) 566-0505

WORKS CITED

- "AccuVein Launches First Portable, Non-Contact Vein Illumination Device." *AccuVein.com*. AccuVein Inc., 18 May 2009. Web. 26 Mar. 2015.
- "AccuVein AV400." *Meditexllc.com*. Meditex LLC, NV, n.d. Web. 13 Apr. 2015. "AV400 Vein Viewing System." *AccuVein*. © 2015 AccuVein Inc., n.d. Web. 13 Apr. 2015.
- "AV400 Vein Viewing System | AccuVein." *AccuVein*. AccuVein Inc., n.d. Web. 22 Apr. 2015.
- Burton, Ashley. "Christie Medical Holdings Unveils VeinViewer® Vision." *Business Wire*. Brookshire Hathaway, 5 May 2010. Web. 13 Apr. 2015.
- Chen, Alvin, Kevin Nikitzuk, Jason Nikitzuk, Tim McGuire, and Martin Yarmush. "Researchers Develop Automated Venipuncture Device That Automates Phlebotomy Procedure." *News-Medical.net*. AZoM.com Limited, 10 Jan. 2014. Web. 26 Mar. 2015. Originally published 8 Nov 2013 by World Scientific <http://www.worldscientific.com/doi/abs/10.1142/S2339547813500064>
- Klatt, Edward C. "Phlebotomy." *The Internet Pathology Laboratory for Medical Education*. Mercer University School of Medicine, 2015. Web. 26 Mar. 2015.
- "Product Catalog | AccuVein." *AccuVein*. AccuVein Inc., n.d. Web. 22 Apr. 2015.
- "Vein Illuminators." *Medicus Health*. Medicus Health, n.d. Web. 13 Apr. 2015.
- "Veinlite® Vein Finders Take the Guesswork out of Venipuncture." *Veinlite.com*. Translite, LLC, 2014. Web. 13 Apr. 2013.
- "VeinViewer Flex." *Christiemed.com*. Christie Medical Holdings, Inc, 2015. Web. 13 Apr. 2015.
- "Veinlite LED®." *Veinlite LED*. Veinlite, n.d. Web. 22 Apr. 2015.
- "VeinViewer Vision." *Christiemed.com*. Christie Medical Holdings, Inc, 2015. Web. 22 Apr. 2015.
- Wagner, Jason. "AccuVein's AV300." *Emergency Physicians Monthly*. N.p., 11 Dec. 2009. Web. 13 Apr. 2015.