Trickle Research

Every raging river, every great lake, every deep blue sea starts … with a trickle

Initiating Research Coverage

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Allocation: 4

Closing Stock Price at Initiation (Closing Px: 11/09/17): $2.90 (USD)

Assure Holdings Corp.

(Stock Symbol(s) - OTC: ARHH and TSX - IOM.V)
http://www.assureneuromonitoring.com/

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Company Overview

Assure Holdings Corp. ("ARHH" or "Assure") is a Denver, Colorado based provider of Interoperative Neuromonitoring ("IONM") services. The Company was formed in 2H 2015, so its operating history is relatively brief. However, over that period, they have managed to grow revenues from essentially zero in fiscal 2015 to over $4 million in the most recently reported *quarter*; June 30, 2017. Our initiating model projects the Company will achieve fiscal 2017 revenues of over $17 million and net income of over $10 million and they have done so by contracting with what we believe will be approximately 30 surgeons by that same year end. Frankly, their performance to this point has been eye-opening. Moreover, as we will delineate further in this report, IONM is applicable to a handful of surgery types/verticals, but to this point, Assure has focused primarily on spine surgery. They are actively expanding into other modalities. In addition, while virtually all of their revenues to this point have been generated in the State of Colorado, they should finish 2017 with operations in at least two additional states and perhaps as many as four additional states. We believe their ability to expand into additional surgery types as well as into additional states, will drive growth into the foreseeable future.

Surgical procedures that involve the nervous system, directly, indirectly or inherently places neural structures at risk. The integrity of those structures at risk can be monitored using various techniques. These techniques are known as intraoperative neurophysiologic monitoring, or IONM. If a change in nerve activity is noticed during the procedure, the technologist reports this change to the surgeon. Corrective action may then be initiated by either the surgeon or anesthesia staff. IONM is also used during the operation to help guide the surgeon in order to obtain more precise results. The goal of IONM is to identify changes in brain, spinal cord, and/or peripheral nerve function in order to prevent complications that could result in irreversible nerve damage. IONM has been well established as a standard of care for over 20 years as a risk mitigation tool during invasive surgeries such as spine, ear, nose, and throat, cardiac, and many others.

The Company's operations consist of two reportable segments, the Professional Fee Segment and the Technical Fee Segment. We address each of these segments further in this report. Assure employs a technical staff that is in the operating room during each surgery and covers the case using industry standard, company-owned diagnostic machinery. Their services also provide redundancy by deploying simultaneous offsite monitoring by contracted neurologists. In addition to the actual monitoring, the Company also provides the scheduling, setup, billing and collection of their IONM services. We believe this turnkey functionality provides them with advantages over other IONM approaches and/or competitors, which speaks to their rapid growth since its inception.

Again, the Company's operations are still relatively nascent, but the results to this point are striking, which by the way includes marked profitability. Those of us who follow small emerging companies can attest to the rarity of "marked profitability" in early stage enterprises. Moreover, as with most early stage stories, Assure faces some risks and challenges that we will attempt to delineate. However, as we noted above, they have identified some clear growth drivers, which include the expansion of surgery "types" as well as geographic expansion into new states. While we certainly can't predict for certain what these expansion opportunities might provide in the long term, we think they do provide some reasonable visibility through fiscal 2018. That by the way (reasonable visibility) is also a bit atypical for a company at this stage of development. Our models suggest that the Company could double its revenue for 2018 over 2017, which should lead to an even larger magnitude increase in pre-tax income for the same period. (We anticipate them being fully taxed in 2018, which has not been the case through 1H 2017).

Industry Overview

According to the U.S. National Library of Medicine, (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3763097/) :

Intraoperative neurophysiological monitoring (IOM) is now an integral part of many surgical procedures. The first use of intraoperative neurophysiological testing dates back to the 1930s, when direct cortical stimulation was performed in order to identify the motor cortex of patients with epilepsy; however, it was only with the development of the commercial IOM machine in the early 1980s that the technique became widely used. The 1990s saw transcranial motor evoked potentials (Tc-MEPs) popularized as a method for monitoring corticospinal tract activity as well as for predicting postoperative motor deficits. Technological advances in the last 15 years have allowed monitoring techniques to greatly evolve. The widespread availability of computer networks and integrated communication systems have allowed IOM to be performed from a remote site; this evolution has increased the potential application of the technique and contributed further to the popularity of IOM.

While intraoperative neurophysiological monitoring ("IONM") is a mouthful for most, it is a reasonably well understood acronym in the healthcare world, as well as an accepted standard of care for a variety of surgery types. From the 10,000-foot view, IONM involves monitoring and interpreting a surgery patient's nervous system impulses in order to avoid and/or reduce the potential for further surgery related neurologic damage. While that sounds simple enough, IONM *employs a wide variety of modalities, each with a very specific application, with several modalities often being used together in the same surgery. These modalities include motor evoked potentials (MEPs), somatosensory evoked potentials (SSEPs), electroencephalography (EEG), electromyography, brainstem auditory evoked potentials (BAEPs), and visual evoked potentials (VEPs)*. (Candidly, a good portion of this **Industry Overview** narrative is taken from sources that are much better at articulating the minutia than us. As usual we denote those contributions in *italics*). The point is, the provisioning of IOMN involves the coordination of a variety of healthcare professionals, medical devices and medical protocols, and as such involves a fair amount of complexity.

We think the following excerpt (from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3787403/) provides a good insight into the value of IONM as well as some of those complexities of its delivery:

> *ONM involves the interpretation of electrical impulses in the nervous system, which create measurable potentials in the nervous system. The technology has evolved over the last four decades; initially using brainstem auditory-evoked potentials to evaluate the acoustic nerve during cerebellopontine angle surgeries, IONM is now used commonly for spine, intracranial structures, vascular, thyroid, and facial surgeries where nerve or nervous system compromise is an acknowledged and potentially avoidable complication. The repertoire of modalities monitored has expanded to include somatosensory-evoked potentials, stimulated peripherally and measured on the scalp; motor-evoked potentials, stimulated on the scalp above the motor cortex and measured in limb muscles, and electromyographic spontaneous and evoked responses from limb muscles. The tests are administered by a trained technologist in the operating room, under the guidance of an oversight physician.*
>
> *These tests involve highly specialized equipment and expertise and are not inexpensive to perform. A technologist eligible to take the American Board of Registration of Electrodiagnostic Technologies must have a bachelor's degree or prior electrodiagnostic credentials with documented participation in a minimum of 150 surgeries using IONM. The physician component, as recommended by the American Academy of Neurology, should be an experienced MD clinical neurophysiologist, which requires 4 years of postgraduate neurology training plus a 1–2-year fellowship.*
>
> *Utilization of IONM is associated with improved surgical outcomes. Multimodal IONM as a diagnostic modality is 94% sensitive and 96% specific for potential neurological injury from meta-*

analysis of pooled published cases. In a survey of 173 spinal surgeons in the United States, 86% indicated that they used IONM for over 51,000 cases, and experienced operative teams (>300 cases monitored) had less than half of the rate of neurological deficits from surgery than those with the least experience (<100 cases monitored). An analysis of over 100,000 routine (non-trauma, non-tumor) spinal surgeries found that cases where IONM was used were significantly less likely to have neurological complications (odds ratio 0.7, p=*0.01) and in-hospital mortality (odds ratio 0.36,* p=*0.016).*[8]

The demands for expertise in IONM are far exceeded by the number of surgeries that could potentially benefit from it*. The number of experienced clinical neurophysiologists is quite limited, whereas* ***spinal surgeries are among the most commonly performed surgical procedures in the United States.*** *Telemedicine, with technologists in the operating room and oversight physicians viewing remotely, helps to leverage vital expertise via simultaneous viewing of waveforms from multiple procedures. In this fashion, telemedicine has helped to bridge the gap between the demand for IONM and the limited supply of qualified professional oversight.*

Just to reiterate, IONM is an established protocol for a number of surgeries where there is reasonable potential for an adverse surgery related neurological compromise, and a variety of studies support both the efficacy and the modality specific favorable cost/benefit profile of these procedures. That said, as we just noted, while the provisioning of IONM services involves a variety of complexities, the challenges associated with billing and getting reimbursed for these procedures is perhaps equally complex.

For those who may not be aware, the process by which healthcare providers get paid for their services is an industry in and of itself, and even the basic detail of those processes and protocols are well beyond the scope of this report and this author for that matter. From a (very) high level, most of the payments received by medical providers come from third party payors either in the form of a government entity (Medicare and Medicaid) or a commercial payor (insurance companies like Cigna or Anthem Blue Cross). Payment for healthcare is driven by a system of reimbursement codes that are specific to particular treatments, protocols, devices etc. These codes are typically referred to as "CPT" codes ("Common Procedural Terminology"). There are *literally tens of thousands of billing codes and sub billing codes*, and for a variety of reasons, the number of those tends to grow with each passing year. Among other things, the existence of thousands of billing codes makes healthcare reimbursement problematic and complex on one hand, and economically perilous on the other. For example, payments for services rendered are notoriously denied and delayed throughout the industry as a result of incorrect billing codes.

In addition to billing code quandaries, healthcare providers are also challenged by reimbursement *collections*. Recognize that the reimbursement of healthcare services differs from payor to payor and even from jurisdiction to jurisdiction. That is, a particular health insurer may cover IONM for ABC spine surgery but not for (or perhaps to a lesser degree) XYZ spine surgery, while a different insurance company may cover XYZ in full, but ABC to a lesser extent. Moreover, the reimbursement rate for the surgery may be different from one state or even areas within a state to the next as well. Like medical coding, reimbursements are a business in and of themselves, yet they are the lifeblood of a healthcare provider.

As we understand it, the IONM space is quite fragmented but perhaps not in the traditional industry sense. It does support some measurable players. For example, SpecialtyCare is perhaps the largest player in the space. According to their own collateral, Tennessee based SpecialtyCare is "*the leading provider of IONM services in the nation. With over 500 IONM professionals on staff, annually supporting 88,000 IONM cases and work with 2,300 surgeons".* SpecialtyCare also provides other healthcare services beyond IONM. As we understand it, SpecialtyCare tends to provide their services directly to hospitals. In other cases, larger surgery groups may utilize their own in-house IONM services. Still other IONM players include technical temporary service type organizations and even individual technicians and /or neurologists who may contract with hospitals and perhaps even the afore mentioned large surgery groups individually. Frankly, there are various combinations of healthcare

organizations (SpecialtyCare), large group practices, hospitals, technicians, neurologist and others that currently deliver IONM solutions or portions of them. However, as we will delineate in the Services Overview below, Assure believes their turnkey approach provides an optimal alternative for many of the relevant pieces of IONM solutions. We think the generally fragmented nature of the industry, both in terms of the participants and the "pieces" of services they deliver, provide an opening for Assure's turnkey approach.

From the macro view, it is difficult to assess the size of the IONM market in part because of the fragmented delivery of its elements. However, we do know that the market is driven by many of the same demographic trends that are driving healthcare demand in general. Those drivers include the aging population as well as perhaps the Affordable Care Act, which has increased the insured population.

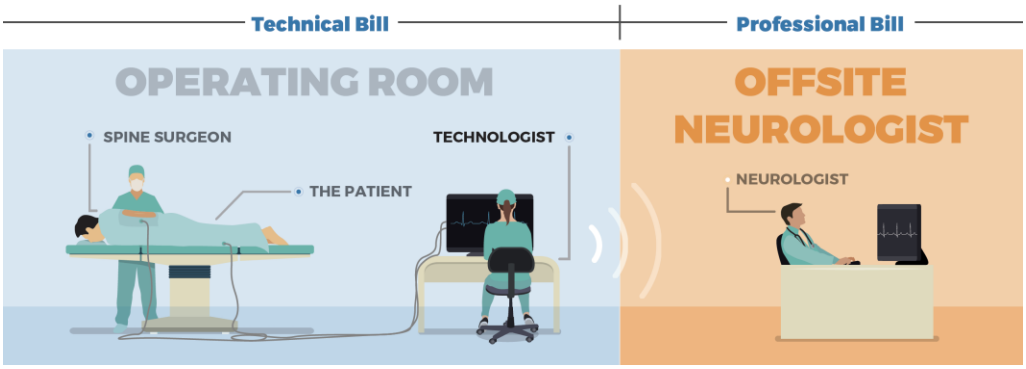
While U.S. healthcare spending grew 4.8 percent in 2016 to $3.35 trillion representing 17.8% of GDP, there is surprisingly little data regarding the number and types of domestic surgeries performed each year. Calendar 2009 data from the National Center for Health Statistics indicate the following:

- Nervous Systems Surgeries 1.2 million
- Ear Surgeries 24,000
- Nose, Mouth, Pharynx Surgeries 289,000
- Cardiovascular System Surgeries 7.3 million
- Musculoskeletal System Surgeries 5.2 million

Certainly, only a portion of these are applicable to IONM, but, the market is substantial nonetheless. From another metric, the American Association of Neurological Surgeons indicate that at the end of 2012 there were *"approximately 3,689 practicing board certified neurosurgeons"* with "*another approximately 160 graduates per year who complete their residency"*. We believe there are a similar number of orthopedic spine surgeons who perform IONM applicable surgeries as well. Assure's own models assume around 200 IONM relevant procedures per year per surgeon (our models are a bit less than that). Again, considering the multiple applicable modalities, the collective market for IONM is considerable, and given the demographic overlay, growth in the number of those procedures is likely to continue. As an adjunct to the notion of the size and potential growth of IONM, keep in mind that as we noted above, the largest player in the space appears to be SpecialtyCare, which *annually supports 88,000 IONM cases",* that suggests to us that considerable portions of the business are being executed by the "fragments" of the industry, which may provide opportunity for innovators.

Services Overview

As we touched on above, Assure believes that its turnkey approach to IONM services provides a better solution for many of the healthcare providers that both utilize and execute IONM services. To delineate that a bit, let's start with the Company's rendering below and consider Assure's value to each of these professionals:



To reiterate a point we touched on above, the Company's operations consist of two reportable segments, the "Technical Fee Segment" and the "Professional Fee Segment". The Technical Fee segment involves the services provided by the IONM technologist, which includes state-of-the-art equipment required to deliver the service. Assure's IONM technicians are employees of the Company. For those who prefer to work as employees (as opposed to independent contractors and/or self-employed individuals) that includes obvious benefits. As we pointed out, the industry is fragmented, so the "types" of organizations technologists can work for varies. For example, a technologist could work for a hospital, a large group practice, as an independent, or for an IONM company like Assure. While perhaps subjective, the Company believes that one of its value points is their ability to provide technician continuity to their associated surgeons by matching particular technicians with particular surgeons as much as possible. That is, they believe surgeons would generally rather work with technicians they are familiar with, and on the flip-side, more times than not technicians would prefer the same. Obviously, that notion is driven in part by individual personalities and judgements for that matter, so that may not be true of all surgeons or all technicians. However, personalities aside, we do think there is something to be said for the efficiencies related to that continuity.

Assure's Professional Fee Segment is perhaps the more unique element of the business. Recognize, a portion of Assure's business plan is built on the idea that surgeons should have a greater *stake* in the IONM services they utilize. In that regard, as we alluded to above, Assure attempts to provide surgeons with familiar technicians whenever possible which they believe provides a more efficient work environment. However, Assure's greater value to surgeons lies in their Profession Fee structure. For example, in the state of Colorado, when Assure engages a new surgeon (or group of associated surgeons), they set up a single purpose entity ("SPE") that is 80% owned by the surgeon or surgeon group, and 20% owned by Assure. The Professional Fee associated with Assure's IONM business is largely related to the services of the offsite neurologist and is billed by/through this SPE. (To clarify, the SPE will only bill professional fees for procedures that are paid for by out-of-network commercial payors, as government payor procedures are negotiated and paid under separate arrangements that the SPE cannot participate in.) We would add, this particular nuance of the model, establishing an 80% / 20% SPE will likely change in other jurisdictions/states depending on applicable laws. That notion may impact the accounting treatment of this piece of the business from one state to the next as well, however, our expectation is that Assure's 20% "share" (as well as the surgeon's 80% share) is likely to remain roughly the same in one form or another.

Typically, the Technical Fees and the Professional Fees associated with Assure's services are about equal. As a result, Assure's platform allows the participating surgeon to earn 80% of the profits generated from the professional side of the IONM billing by virtue of their ownership of 80% of the SPE that bills the professional fee. Obviously, that provides an attractive value proposition for the surgeon that they would likely not capture under other IONM models. Our expectation is that the Company will continue to earn about 20% of the profits from professional billings regardless of the required structure of the arrangement.

Along with the technician and the surgeon, the Company believes its platform provides benefits to offsite neurologists as well. Here again, we would invoke the notion that all professionals involved would prefer to work on familiar "teams", which we think Assure's system is conducive to and that would include offsite neurologist monitors. Moreover, they also believe that their system allows contracted neurologists to engage more IONM business without having to seek it out themselves, which Assure also manages in terms of scheduling. They believe their system allows participating neurologists to better utilize their own available billable hours.

Aside from the actual delivery of IONM services, the Company also believes it has successfully developed other key components of the IONM loop, specifically billing and collection. As we noted above, healthcare billing and corresponding collections are industries in and of themselves. Assure utilizes both in-house protocols and personnel that interface with IONM specific third-party billing and collection entities to ensure that procedures they provide are properly coded, billed and collected. Since their business is IONM and IONM only, the Company is focused on understanding all relevant coding and billing issues (and changes) in the IONM space. Given the complexities we addressed above, we think being experts in billing and collecting IONM (or at least utilizing the services of those who are) are paramount to the Company's continued success and frankly their attention to that

detail is part of their "secret sauce". Management is quite clear about the idea that following up on and collecting (in full) reimbursements from payors is an important element to their success.

We think the Company has done an impressive job of establishing themselves as a new player in what is essentially a relatively mature business. While IONM may be new to many who are not entrenched in the healthcare industry on one level or another, as we noted, it is a well-established and well accepted protocol for the mitigation of surgery related nerve damage. As such, we are not suggesting that Assure has developed anything new and innovative to that process. What they *have done*, is create a new approach with respect to how IONM reimbursements are distributed amongst the relevant medical professionals providing IONM services and the surgeries augmented by those services. While that approach is clearly beneficial to participating surgeons on the face, we think it may also create some continuity and efficiencies that benefit providers and patients alike. We also believe that their turnkey approach to consolidate some of the typically fragmented elements of the industry may be something that healthcare providers relying on IONM services in one form or another may find more appealing than their current approach.

The above said, Assure's continued success will be driven in part by particular elements that have been paramount to their success to this point. Recognize, the concept of Assure's current business plan was developed by founder Preston Parsons, who has spent the better part of the past decade selling medical devices into the orthopedic implant space. That experience has provided Mr. Parsons with considerable tribal knowledge of the industry, and many of the issues/advantages we touched on above with respect to Assure are a result of that knowledge and experience. Further, we think a good part of their success is/will be about relationships, which are the lifeblood of many organizations, and we don't think Assure is an exception to that. We are confident suggesting that Mr. Parson's experience in the space interacting with surgeons, has likely provided them with entrees into those professionals.

We submit, we are microcap generalists, not healthcare analysts, but over thirty years covering microcaps, we have evaluated our share of healthcare related offerings. If there is anything we have learned in that endeavor, it is that doctors/surgeons are not always conducive to change, more times than not because they are too busy to learn new tricks especially with respect to critical elements of their business. Getting doctors/surgeons to try something new is a difficult task on the face, but a relationship at least moves the needle into the realm of possibility. Again, we think Mr. Parson's relationships have been paramount, (and it probably didn't hurt that he is an ex-NFL quarterback). Further, the Company has added and continues to search for personnel with deep relationships in the verticals they cover (spine, vascular, ENT) as well as across new geographic markets outside of Colorado.

In addition to Mr. Parsons, CEO Matthew Willer was a principal in three separate enterprises that he helped advance "*from inception to mid-market status within 5 years or less".* These two individuals are largely responsible for the company's growth and success to this point.

Operating Overview

As we touched on above, the Company bills a "technical fee" and a "professional fee", and the accounting treatment of each (or at least the latter) is important in understanding Assure's operating numbers. The technical fee is straightforward. This portion of the billing is related to the provisioning of the operating room technician and associated equipment etc. The costs associated with technical fees generally amount to the technician (a salaried employee) as well as associated scheduling costs, disposables and miscellaneous items associated with the technician. For the first half of 2017, gross margins were approximately 85%. Given that much of the cost associated with providing these fees is fixed (technician salaries and equipment depreciation), on an ongoing basis these particular margins will depend on technician utilization and average billing/fee charged. Recognize, the fee

is determined by the procedure and to date, they have managed to garner technical fees that appear to have averaged around $7,500 per procedure. Again, the types of procedures that are billed, continued reimbursements associated with those procedures and the Company's ability to collect those reimbursements in full, will determine margins going forward. To hedge the assumptions, our model assumes some fee and margin compression going forward.

The billing and accounting treatment of the professional fee portion of Assure's services are a bit more complex. Here again, we believe the professional fee billings have averaged about $7,500 to this point (although we are using a slightly lower number), and they are also a function of the type of procedure. Most of the expenses associated with professional fees involve the cost of the offsite neurologists. The Company generally contracts with neurologists for a flat fee or a flat hourly fee depending on the procedure. Recall, when Assure establishes a relationship with a surgeon or surgeon group, they set up a special purpose entity (an LLC for example), which is 80% owned by the surgeon/surgeon group, and 20% owned by Assure. The SPE will then bill the professional fees. When fees are collected, expenses are applied against them and Assure receives its 20% share according to its ownership. This 20% share is reflected on Assure's income statement as "Earnings from Equity Method Investments", and are not accounted for as operating income but rather investment income (below the operating line) by virtue of their 20% *ownership* in the established SPE(s). As with the technical fees, the extent of this contribution will depend on the continued reimbursements associated with the procedures, the Company's ability to collect those reimbursements in full, as well as the number of surgeons they are able to contract with, the types of procedures they service and the number of IONM dependent procedures their affiliated surgeons perform. Keep in mind, the structure and accounting for professional fees will likely change from one state to the next.

Just to reinforce the point, the Company has just recently added surgeons in the form of both new verticals and new states. For 2Q fiscal 2017 (ended June 30,2017) the Company achieved revenues of $4 million, which was generated through affiliations with 15 surgeons all in the spine vertical and all in the State of Colorado. We believe that for 3Q fiscal 2017 (ended September 30, 2017), the Company added 6 additional surgeons in spine and 6 new surgeons in vascular, all (also) in the state of Colorado. If our assessment in that regard is correct, they should have ended 3Q-F17 with 27 surgeons; 21 in spine, 6 in vascular and all in Colorado. Our expectation is that they will add surgeons in at least two additional states by the end of 2017, setting the stage for 2018 expansion outside of their current footprint. Our current model assumptions are that by the end of 2018, Assure will have around 60-65 surgeons across three states. Moreover, the Company's public presentations address at least five additional states (beyond Colorado) that they have focused their expansion efforts on, so it's not out of the question to think they could be in six states by the end of 2018. We would expect surgeon counts at the higher end of our range in that case.

While we are anticipating continued surgeon additions going forward, we would caution on some of the nuances of those additions. For example, while we noted that 3Q-F17 should reflect the expansion of surgeon counts from 15 to 27 over 2Q-F17, we don't expect those new additions to add significantly to the quarter-over-quarter revenue comparisons. To that end, our modeling approach is to reflect "fully loaded" contributions from surgeon additions in the quarters following their additions rather than in the quarters they are added. Our theory therein (and the experience to this point as we understand it) is that it takes new surgeons 90 days or so to get up and running on the Assure platform, so again, measurable contributions are probably best reflected as commencing in the quarter(s) following their addition (depending as well on *when surgeons are added during particular quarters* as and how quickly they move *all* of their applicable procedures to the platform).

While the Company suggests that over the past few years IONM reimbursements have remained stable, we think they are the biggest wild card in the model assumptions. To be sure, that is our view, not necessarily the Company's. We have modeled decreasing reimbursement amounts beyond 2018. All other things being equal, if we are wrong about that our assumptions will likely prove conservative. On the other hand, if reimbursement compression proves more pronounced than we are reflecting, our assumptions will likely prove overstated. Again, we think the reimbursements may be the single biggest risk to the model assumptions.

We expect seasonality to impact the quarter-over-quarter results as well. The experience in the surgery industry is that patients tend to elect to have surgeries outside of the summer vacation window whenever possible. Surgeons tend to take vacations during that period as well. As a result, calendar Q3 is generally the weakest quarter for surgeries in general. At the same time Q4 tends to be the heaviest surgery quarter because not only have vacationers pushed surgeries beyond the summer, but as yearend approaches, patients attempt to take advantage of deductible thresholds. To translate, we think it is reasonable to expect Q3 to be the weakest annual quarter and Q4 to be the strongest.

In case its nor clear, the revenue model will be quite fluid going forward because there are several moving parts that will impact revenues as well as the challenge of trying to model them. For example, the mix of private pay versus government pay patients will significantly impact profitability since the effective margin on the latter is substantially lower. We are currently reflecting that mix at about 70% / 30%. Surgeon mix will be important as well. In short, some surgeons will perform more procedures each year than others, and some procedures will require more IONM services than others. Here again, the varying reimbursement amounts for one procedure to the next and the changes to those reimbursements over time, will also likely provide another set of moving targets. While we must model these "mixes" via some conceptual averages approach, it will certainly require a much larger "sample size" (more surgeons and more procedures) to develop averages that reflect good visibility. We expect that visibility to improve as we gather additional data points.

We think we have modeled reasonable growth in the SG&A expense line items to support the top line revenue growth we are projecting. We submit, it's difficult to back test that given the short operating history. We will revisit that as we move forward as well.

Lastly, we have included the stock derivatives in the fully diluted numbers en masse. We generally attempt to add derivatives using a treasury method approach and assuming forward stock prices. In this case since the derivatives are collectively quite in the money we chose to just include them wholly in the fully diluted computation. Moreover, we suspect many will get exercised if the premiums continue to hold and the liquidity of the stock improves. To that same end, there is a 6 million share incentive bonus for particular executives in the event their net income for 2017 exceeds $7.5 million. It looks as though that threshold should be achieved, so we have worked those into the dilution as well. We would caution, we do not know what the accounting treatment of that award will be, so it could create a large extraordinary/non-cash expenses in 2018. Here again, we will make some adjustments around that notion once we get some clarity, but adding it to the assumed dilution should reflect its *ultimate* impact.

Risks and Caveats

To be honest, initiating coverage on a name that is at this point in its growth and earnings trajectory is a bit outside our comfort zone, or at least outside of our typical approach. We are used to being early in these stories, but with a current market cap of over $100 million (dilution aside) we are hardly "early", at least in our typical sense of the word. On the other hand, since its debut as a publicly traded Company (in mid-July of this year) the stock has never really traded much lower than the current levels so there were no opportunities to be "early" in the stock. Moreover, their growth and earnings numbers tend to support the market cap. After all, if they do in fact achieve our projections of net income in the $10 million - $11 million range for fiscal 2017, the stock (assuming it doesn't move substantially higher or lower by year end) would finish 2017 trading at 10X to 12X trailing earnings. That hardly makes the stock expensive on the face. Nonetheless, this is still a bit atypical for us.

As we noted, we think management has done an impressive job of building the Company to this point, and their relationships have been quite instrumental in the Company's early success. We think those relationships will remain paramount to the Company's success for the foreseeable future. As a result, we would consider the loss of Company founder and CEO Preston Parsons, and/or President Matthew Willer as markedly negative. On the other

hand, as we also alluded to, we think Assure's future growth will likely also be predicated on their ability to attract and retain additional appropriate personnel to assist with the growth of the Company on the trajectories that we think they are anticipating.

Assure recently presented at an investment conference we cohosted this past September (2017). That was our first real introduction to the story, and we walked away from that presentation intrigued enough to get to this point of initiating coverage. Since that presentation, we have had several investors ask us what we thought about the company, and our initial answer to that question (and one that seemed to be echoed by those we talked to) was that the results have been extraordinary, but that two quarters do not constitute a trend, so the focus becomes how sustainable and perhaps how *scalable* the Company's initial success might be. To that point, the Company obviously faces many of the same challenges that nascent businesses often face; developing viable value-added products and services, identifying customers and convincing them to try something new, managing growth in the event of success, and a host of other typical challenges that they have some degree of control impacting. While those challenges are formidable enough, some businesses like Assure's, also face some variables that they may have little ability to impact and/or perhaps mitigate.

Healthcare is becoming a larger and larger piece of GDP and the issues of who is going to pay for it and how much they are going to pay will be topical for a very long time. The reimbursement of IONM services by insurance companies and government payors is one of the single biggest drivers of Assure's future success, and there is little they can do to impact the decisions that might determine those reimbursements going forward. Today, those considerable reimbursements drive their extraordinary margins, and the results that underlie them. We would argue that the ongoing uncertainty of those reimbursements will likely impede the Company from trading at multiples more in line with the types of growth rates they might achieve (in the event of otherwise *stable* reimbursements) because the impact of potentially lower reimbursements on the numbers is profound. We think that may already be reflected in the stock today. Consider, the Company has posted fully diluted earnings for the first half of 2017 of $.17 per share, and it seems likely that they will end the year having at least annualized that net income number. Granted, the fully diluted EPS will be impacted lower because of the added (second half) dilution issues we addressed above, but, even with *those* numbers fully baked in, we are projecting $.24 per share in earnings, which means the stock is currently trading at a P/E of around 10 to 12 times that anticipated EPS. Keep in mind, we are looking for 2018 results of 2X+ the 2017 numbers, which would make a 10X or even 12X P/E ratio appear clearly undervalued…that is, unless one believes the risks of lower reimbursements will substantially impede growth going forward. Again, we think the specter of lower reimbursements will corral multiples that might *otherwise* speak to higher valuations. We would add, **the one thing the Company can do** to mitigate the potential of reimbursements muting growth and overall results, is to grow the surgeon base. They are clearly focused on that endeavor, and we would view successes in that regard as highly positive on many levels.

Another issue we addressed above is the Company's assertion that some of their "secret sauce" is their ability to collect on (in a timely manner) the full reimbursements they bill for both technical and professional IONM fees. At June 30, 2017 (the most recent reported quarter) they reflected accounts receivable of just under $10 million, while revenues for the same period were just under $8 million. Over the period, receivable grew $5.5 million on a net basis, which given the stark revenue increases is understandable. However, monitoring the collection of these receivables will be paramount in assessing the Company going forward and could become a key metric in the valuation of the shares. We suspect the year end audit may provide some guidance with respect to this issue going forward. As an extension to that notion, they currently "book" revenues as a percentage of actual billings to reflect the potential for billings that exceed actual collections. That is, they bill one number but book a smaller (net) portion of that number to reflect potentially uncollectible amounts. To date that process has yielded some "over collections" (actual collections that exceeded the net booking amount), but they could certainly have instances where collections fall short of actual bookings resulting in some sort of write-off or other contra-revenue adjustment.

As noted, some of the Company's principals are slated to receive a large (6 million shares) performance bonus based on 2017 net income performance, which it looks like they are poised to achieve. We do not know what the accounting treatment of this item will be. Our sense is that it could negatively impact the 2017 results, or the 2018 results if it is carried forward for some reason. We tend to think this will be reconciled in the 2017 results. Granted, this will be a non-cash event, and we have already included the impact of the share grant into the fully diluted computations, but it's the sort of thing that will muddy the numbers and require narrative to reconcile the comparable results. Again, in our view, once we add the bonus into the share counts its impact is accounted for, and beyond that, it is really not germane to the discussion of comparable *operating* results, which is a metric we tend to focus on. However, it will require some reconciliation going forward.

Like many microcap stocks, Assure's publicly traded shares are largely illiquid. We include this particular risk caveat in nearly every company we initiate on because we often look for illiquid issues since we believe illiquidity is sometime a *tell* for value. With that said, small emerging equities may not be appropriate for all investors, and generally illiquid investments may not be appropriate for all investors either. Assure is both of those things. Obviously, our assessment is that if the Company performs in reasonable proximity to our assumptions, at some point in the future it will be neither of those things (small or illiquid). Today Assure, is both small and illiquid.

These are just a few of the more obvious risks we are focused on with respect to Assure's shares. There are likely others we have missed or left out as well as others that may emerge going forward. We will try to address any of those that arise via future updates to this research.

Summary and Conclusion

To reiterate, our first introduction to Assure was through a presentation they made at a conference we cosponsored in September 2017 here in Denver, Colorado. As we have noted in some of our past research, while we are generalists, which means we follow stories across a variety of industries and in various parts of the country, we do tend to have an affinity for local deals (for several reasons) so Assure fit that bill. Beyond that, it's difficult to look over what they have accomplished over the past year or two and not be impressed with the results. As we noted, it's almost hard to believe, and that is a comment we have heard from a number of folks we know who have been in this business for a lot of years. That may speak to the unique nature of the business and their plan therein, as well as the marked traction they have gained in a short period of time. We would add, while we are impressed, we are not befuddled. The plan, which really includes a way for surgeons to participate financially in an additional element of the surgeries *they perform*, involves some innovation. From our perspective, in many instances involving various types of IONM procedures/reimbursements, some number of people and organizations are earning portions of that IONM service, and Assure has developed a process where the most important additive to that modality, the surgeon, is now participating in that reimbursement. It's not hard to understand why surgeons might want to participate in the platform Assure has developed.

To be sure, we understand the connotation that implies, but frankly, we think the grand healthcare dilemma (who's going to get it and who's going to pay for it) could use a dose of economic reality. At the risk of sounding blunt, someone should probably provide a clue to those trying to "fix" healthcare and let them know that when the demand for healthcare increases (by providing more people with health insurance on top of an aging population with increasing healthcare needs) either the supply of it must rise to clear the demand, or the existing supply must get more expensive to allocate the difference. We are perplexed by the notion that *reducing reimbursements/payments* to doctors, (especially highly trained and already scarce surgeons) will *somehow* lead

to an *increase in the supply* of doctors. To that point, a 2012 report from the American Association of Neurological Surgeons notes that (among other things) *"the length of post graduate residency training for neurosurgeons is among the longest, now at seven years. Subspecialty fellowship training adds an additional one to two years. The pipeline for becoming a board-certified neurosurgeon is long – as much as 18 years from the start of medical school to certification -- so replenishing the neurosurgical workforce is no easy task, and producing 160 neurosurgeons per year will certainly fail to keep pace with patient care demand.* We recognize that the idea of surgeons making more money may offend some people's sensibilities, but someone besides Assure better figure out how to better incentivize surgeons performing IONM necessary surgeries or there may not be any around when we need them. We're pretty sure that reducing their reimbursements won't work very well. Just to reiterate, we are on board with why some physicians might find Assure's platform attractive.

As we suggested earlier in this report, the reimbursement environment for IONM remains a wildcard in the analysis. On the one hand, we recognize the industry push to rein in costs (read: reduce reimbursements), but we are not sure that limiting procedures that can mitigate unintended but potentially catastrophic outcomes is a good place to start. Aside from the economic (cost/benefit) perspective, we are pretty sure that most patients heading into these types of procedures would prefer (insist) to be monitored. We don't know where IONM reimbursement might end up. The Company suggests that the reimbursement environment for IONM has remained relatively stable for the past few years, and they anticipate that continuing into the foreseeable future. We have noted that notion as a clear risk in the deal, but if they are correct in their assessment, we would suggest that Assure maybe at the front end of a considerable fundamental advance that we assume would ultimately be reflected in much higher stock prices.

While reimbursements (and their associated collections) will remain topical, the best way for Assure to mitigate their impact (through efforts within their power) is to add surgeons to their platform. As we have addressed, the early returns on those endeavors have been quite favorable and as such we would view any additional announcement concerning the addition of geographic markets, vertical markets and surgeon counts has highly positive.

We submit, the operating history is limited so it's difficult to model the relationship of particular line items (cost of goods and SG&A) to revenues, especially in the event that they scale as we suspect they could. Obviously, we will update the model as operating visibility improves. Frankly, there should be some room in our valuation assumptions for some error because as we suggested, we are not applying high growth multiples to our valuation targets. Translation: if our assumptions about reimbursements, margins and operating expenses hold up, our valuation assessments could prove significantly conservative. (To that point, we have made some assumptions in our model that reflect sequentially lower reimbursements starting in 2019).

In summary, the results thus far have been impressive to the point of skepticism, and we are not the only people to express that view. However, after spending some time on this, we think we have a good handle on the value proposition and the plan that underlies it. We submit, that plan involves some ongoing challenges, but we think we at least have some visibility on what those challenges are. That is not always the case with small emerging enterprises. On the flipside of those challenges, if they continue to execute along the lines we have modeled, the ultimate results could be quite open ended…perhaps well beyond our current assumptions. As usual we will revisit those assumptions and associated targets/allocations as results unfold and visibility improves. We are initiating coverage of Assure Holdings Corp. With an allocation of 4 and an initial 12-24 month price target of $5.75.

Projected Operating Model

Assure Holdings Corp.										
Projected Operating Model										
By Trickle Research LLC										
	(Actual)	(Actual)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)
	3/31/17	**6/30/17**	**9/30/17**	**12/31/17**	**Fiscal 2017**	**3/31/18**	**6/30/18**	**9/30/18**	**12/31/18**	**Fiscal 2018**
Revenue:										
Out of Network Fees	$ 3,836,724	$ 3,913,622	$ 3,577,276	$ 5,654,975	$16,982,596	$ 6,754,185	$ 8,510,273	$ 9,251,360	$ 12,474,342	$ 36,990,160
Contract Fees	$ 78,065	$ 112,818	$ 103,049	$ 162,901	$ 456,833	$ 194,565	$ 245,152	$ 266,500	$ 359,343	$ 1,065,560
Other Revenue	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Revenues	$ 3,914,789	$ 4,026,440	$ 3,680,325	$ 5,817,875	**$17,439,429**	$ 6,948,750	$ 8,755,425	$ 9,517,860	$ 12,833,685	**$ 38,055,720**
Cost of Revenues	$ 533,710	$ 628,759	$ 717,731	$ 1,018,013	$ 2,898,213	$ 1,215,894	$ 1,532,026	$ 1,670,880	$ 2,258,184	$ 6,676,983
Gross Margin	$ 3,381,079	$ 3,397,681	$ 2,962,594	$ 4,799,862	**$14,541,216**	$ 5,732,856	$ 7,223,399	$ 7,846,980	$ 10,575,501	**$ 31,378,737**
Operating Expenses:										
General and Administrative	$ 522,976	$ 1,178,439	$ 1,175,409	$ 1,220,848	$ 4,097,673	$ 1,297,793	$ 1,420,719	$ 1,472,595	$ 1,698,204	$ 5,889,311
Depreciation	$ 45,557	$ 57,410	$ 50,656	$ 63,827	$ 217,450	$ 69,385	$ 93,558	$ 88,675	$ 97,066	$ 348,684
Sales and Marketing	$ 88,957	$ 128,279	$ 164,909	$ 146,936	$ 529,082	$ 184,950	$ 210,556	$ 222,990	$ 241,117	$ 859,613
Other Operating Expenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Expenses	$ 657,490	$ 1,364,128	$ 1,390,975	$ 1,431,611	**$ 4,844,205**	$ 1,552,128	$ 1,724,833	$ 1,784,261	$ 2,036,387	**$ 7,097,609**
Earnings (Loss) from Operations	$ 2,723,589	$ 2,033,553	$ 1,571,618	$ 3,368,251	**$ 9,697,011**	$ 4,180,729	$ 5,498,566	$ 6,062,719	$ 8,539,114	**$ 24,281,128**
Other Income (Expense):										
Earnings from Equity Method Investments	$ 905,797	$ 550,454	$ 630,315	$ 1,031,205	$ 3,117,771	$ 1,231,650	$ 1,551,879	$ 1,699,677	$ 2,303,910	$ 6,787,116
Interest, Net	$ (17,292)	$ (5,486)	$ -	$ 4,192	$ (18,586)	$ 6,547	$ 6,674	$ 8,442	$ 11,172	$ 32,835
Other Income(Expesne)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Other Income (Expense)	$ 888,505	$ 544,968	$ 630,315	$ 1,035,397	**$ 3,099,185**	$ 1,238,197	$ 1,558,553	$ 1,708,119	$ 2,315,082	**$ 6,819,951**
Income Before Income Taxes	$ 3,612,094	$ 2,578,521	$ 2,201,933	$ 4,403,648	**$12,796,197**	$ 5,418,925	$ 7,057,120	$ 7,770,837	$ 10,854,196	**$ 31,101,078**
Income Taxes	$ 399,297	$ 411,215	$ 396,348	$ 792,657	**$ 1,999,517**	$ 2,059,192	$ 2,681,705	$ 2,952,918	$ 4,124,594	**$ 11,818,410**
Net Income	$ 3,212,797	$ 2,167,306	$ 1,805,585	$ 3,610,991	**$10,796,680**	$ 3,359,734	$ 4,375,414	$ 4,817,919	$ 6,729,601	**$ 19,282,669**
Basic Earnings per Common Share	$ 0.09	$ 0.06	$ 0.05	$ 0.10	**$ 0.29**	$ 0.08	$ 0.10	$ 0.11	$ 0.15	**$ 0.43**
Fully Diluted Earnings per Common Share	$ 0.09	$ 0.06	$ 0.04	$ 0.08	**$ 0.24**	$ 0.07	$ 0.10	$ 0.11	$ 0.15	**$ 0.43**
Basic Shares O/S	35,494,603	35,494,603	35,494,603	36,134,603	36,774,603	43,414,603	44,054,603	44,694,603	44,694,603	44,694,603
Fully Diluted Shares O/S	35,494,603	38,713,058	41,931,512	45,149,967	45,149,967	45,149,967	45,149,967	45,149,967	45,149,967	45,149,967

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