

## Cost-Effective In-Office Diagnostic Imaging: Visionscope Versus MRI

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### Summary:

Utilization of the VSI system significantly reduced Health Care System costs for the study cohort at a high level quality of care.

### Abstract:

#### Objectives:

Advanced imaging techniques such as MRI and CT have been implicated as the driving force to soaring health care costs. Alternative imaging/diagnostic techniques at lower costs are essential in order to lower health care expenditures. The VisionScope (VSI) System is an office-based diagnostic endoscope that can capture real-time images and video providing an intra-capsular diagnostic image on par with images from a surgical arthroscopy. The purpose of this study is to determine whether the VSI system can provide diagnostic assessments that are more cost effective and at an equal or higher diagnostic accuracy compared to MRI..

**Methods:** The cohort represented this center's first 45 patients to under go a VSI procedure performed by a single surgeon in an office based setting. The key component of the VisionScope is a 1.4 mm diameter semi-rigid/fiber-lens endoscope, which nests within a sub 2 mm working cannula without the need for circulating fluid. This 18-gauge cannula is similar in dimensions to current intra-articular syringe applications. Patients are able to obtain a definitive diagnosis during their first office visit and can eliminate the need and cost for a diagnostic MRI and/or follow up office visits. Overall cost savings to the Healthcare System (comparing matched MRI cohort to VSI) and quality of care (accuracy of the diagnostic, complications, patient satisfaction) were assessed.

#### Results:

36 patients underwent a knee VSI and 9 patients had a shoulder VSI. 26 (80%) of patients presented with continued pain following at least one surgical procedure with the remaining 9 (20%) complaining of first time symptoms. 17/45 (38%) patients presented to the senior author's referral practice with an MRI prior to the VSI. 26% of patients had a subsequent surgical procedure to treat pathology identified by the VSI, while 74% required no further surgical procedure. The cohort represented an aggregate savings of \$46,269.00 (\$1028.00 per cohort patient) based on published CMS rates to the health system versus a matched traditional treatment path. The savings were largely comprised of fewer MRI scans and surgical arthroscopies. This center estimated that it performed fewer diagnostic surgeries (38%), than a matched MRI informed treatment path within the cohort. VSI's diagnostic accuracy was confirmed to be comparable to the OR arthroscopy images on the surgical cohort.

#### Conclusions:

Utilization of the VSI system significantly reduced Health Care System costs for the study cohort at a high level quality of care. The cost of a VSI is significantly less than a MRI, less office visits are required, and "second look" arthroscopies are eliminated. Patient satisfaction is high, and no patient indicated the desire to seek a "second opinion" after seeing the VSI performed and seeing the results in real-time. Based on these results, utilization of the VSI diagnostic imaging system provided accurate patient diagnostic information at significantly less expense to the health care system and with greater patient satisfaction.