
EXECUTIVE OVERVIEW



Executive Summary

What is TIMS MVP?

TIMS MVP is a PC based video recording device that connects to any fluoroscope. TIMS MVP records high-resolution / high-frame rate video with synchronized audio, and automatically converts the study to DICOM format for archival to any PACS or VNA.

Built-in software tools allow for quick review and editing of recorded studies. Additional included software can be installed on an existing hospital computer, allowing studies to be reviewed in the speech pathology office, freeing up the fluoro room for the next procedure.

Why is TIMS MVP needed?

TIMS MVP frequently replaces low resolution DVD recorders, or augments slow frame rate fluoroscopes, for recording MBS studies. For years speech pathologists have struggled with these limitations, putting patients at risk by not using diagnostic quality imagery to make clinical decisions. Simply put, TIMS MVP meets the Standard of Care recommended for performing modified barium swallow studies.

What benefits does TIMS MVP provide?

- **Improves patient outcomes** by providing speech pathology team with diagnostic quality imagery.
- **Improves patient safety** by reducing the need to re-radiate patients due to inadequate imagery.
- Better patient outcomes and better patient safety equate to **increased patient satisfaction and retention**.
- Improves fluoro room efficiency with a **streamlined workflow**.
- **Reduces the risk of HIPAA violations** by eliminating the use of removable media containing patient information.
- **Facilitates access to MBS studies** by archiving to PACS instead of storing on DVD in a filing cabinet.

Installation & Training?

The cost of the TIMS MVP includes installation and training, which typically takes place over the course of about 1.5 days. The installers / trainers are all TIMS Medical staff.



TIMS 2000 SP stationary system, part of the TIMS MVP family.

About TIMS Medical

- TIMS Medical is a division of Foresight Imaging, based in Chelmsford, MA.
- The TIMS System has been shipping since 2004, with over 5000 installations worldwide.
- To maintain our high standards, all hardware and software development is done in house.
- Your continued satisfaction is our number one priority. TIMS Medical prides itself on outstanding customer service and support!



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Comparing TIMS MVP to Your Existing Recording Device

Standard of Care

Meeting the Standard of Care for recording MBS studies requires some consideration regarding frame rate and image resolution...

Frame Rate

Because events during a Modified Barium Swallow Study happen so quickly (a fraction of a second), it is critical to capture the fluoro imagery at 30 frames per second.

Most fluoroscopes can acquire at only 10-15 fps, meaning critical information can be completely missed. This limitation was initially overcome by recording studies with VHS tape, and then DVD.

Image Resolution

Unfortunately VHS and DVD have their own limitations as they only capture at 1/4 of the resolution of the fluoroscope (640x480). For years SLPs have had to make clinical assessments based on low resolution imagery. A fair question to ask is: "would you provide your radiologists with fluoro imagery that is only 1/4 the resolution of the fluoroscope?"

Synchronized Audio

TIMS MVP records synchronized audio allowing SLPs to verbally annotate the study with the consistencies given to the patient, as well as record clinical observations and patient reactions. No fluoro provides this capability.

File Size

In addition to providing the Standard of Care required for recording MBS studies, the TIMS MVP uses industry standard compression to significantly reduce the size of the completed study. *Recording MBS studies with just the fluoroscope creates studies averaging about 4GB!*

Comparison at-a-glance...

	TIMS MVP	DVD	Fluoro
Resolution	1024 x 1024	640 x 480	1024 x 1024
Frame Rate	30 fps	30 fps	10-15 fps
Audio	Yes	Maybe	No
File Size	~300MB	N/A	~4GB



TIMS Mobile Cart system with 27" touch screen display.

Evidence Based Studies

- Several studies have been conducted which conclude that 30 fps is required to accurately assess an MBS study:
- **Preliminary Investigation of the Effect of Pulse Rate on Judgments of Swallowing Impairment and Treatment Recommendations** - 2013
<https://link.springer.com/article/10.1007%2Fs00455-013-9463-z>
- **Can we use pulsed fluoroscopy to decrease the radiation dose during video fluoroscopic studies in children?** - 2008
<https://www.ncbi.nlm.nih.gov/pubmed/19070700>

Workflow and TIMS Review

Workflow Flexibility

Not all hospitals have the same workflow requirements. TIMS MVP offers a high degree of flexibility when it comes to choosing a workflow. Illustrated below are the two most commonly deployed workflows.

TIMS Review Workflow

Included with every TIMS MVP is a copy of our TIMS Review software. This Windows application can be installed on a hospital supplied desktop or laptop PC. Enabling this workflow allows studies to be quickly sent to the Speech Pathology office for editing and review, instead of tying up a valuable fluoro suite, meaning more fluoro studies per day.

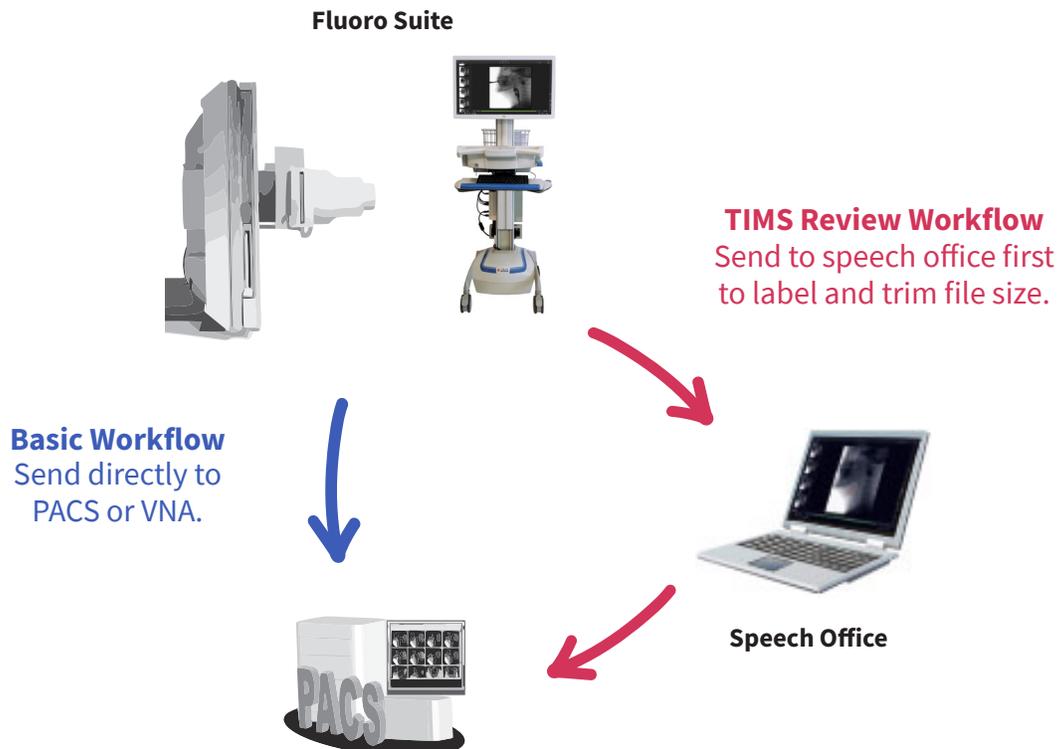
The powerful editing and review tools in found in TIMS Review make it easy to further reduce the size of the study, saving even more room in PACS. When editing and review are complete, the study can then be sent to PACS for long term archival.

Basic Workflow

Alternatively, editing and review of the study can be done in the fluoro room using TIMS MVP. The study can then be sent directly to a PACS or VNA. This workflow is used when either the speech team does not have dedicated computers, or if there is a requirement to have the study available in PACS immediately after it is performed.

Other Workflows

The workflow can also be configured to send to PACS and TIMS Review simultaneously, in which case the speech team would just delete the study in their office when complete. TIMS MVP can also archive to a network storage location, VNA, DVD, USB Drive, etc.



What I Need to Know as the...

Director of Radiology

What is required to install TIMS MVP?

We provide a junction box which is mounted to an appropriate wall in the fluoro suite. The box has connections for video and trigger cables from the fluoro, and LAN as well. This would ideally be mounted near a 120v power outlet. We typically need about a 4 hour window in the fluoro room to install TIMS MVP into the prepared room.

How will TIMS MVP impact my radiologists?

Your radiology staff will typically perform the studies as usual. TIMS MVP will record automatically whenever the fluoro is being activated. In order for TIMS MVP to capture 30 unique frames per second, the fluoro should be set to “continuous” mode.

How much room does the TIMS MVP require?

The stationary TIMS MVP system is usually located on a control room counter top. It has a small (12” x 12”) footprint, along with a compact keyboard and mouse. The TIMS MVP Mobile Cart only requires about 2’ x 2’ of floor space and can typically be easily stored in a corner of the room.

PACS Administrator

What is required to integrate TIMS MVP to our PACS?

TIMS MVP is basically set up as another modality in your PACS. TIMS MVP will need to be assigned an AE Title and IP address, and we’ll need a port number to communicate with PACS. If you will be sending studies from the TIMS Review software, it will need the same. TIMS MVP also easily integrates with your existing worklist server to retrieve patient information.

What file types does TIMS MVP send, and how big are they?

The default (and highly recommended) setting is motion JPEG file format. The imagery will be visually lossless and remain diagnostic quality. When using motion JPEG most MBS studies are about 300MB on average.

IT Manager

Can we apply our anti-virus and / or encryption policies to TIMS MVP and TIMS Review?

TIMS MVP is compatible with most major encryption and anti-virus applications. However, it may be necessary to enter anti-virus or firewall exclusions which we can provide.

What are the requirements for the hospital computer that TIMS Review will be installed on?

- Operating System: Windows 10 Professional 64 bit
- Memory: 4GB minimum, (8GB for best performance)
- Hard drive: 500GB with at least 250GB free space available, 7200 rpm or better. SSD drives recommended for best performance.
- CPU: 4th generation Intel i3 (Haswell) or better recommended

More Frequently Asked Questions...

Support & Maintenance

What support and maintenance is included?

Your TIMS MVP includes 1 year of support and maintenance. After which support can be renewed annually for up to 5 years. We also offer a “Support Bundle” at time of purchase which provides the full 5 years of support at a reduced cost.

After 5 years we recommend taking advantage of our CPU Upgrade program which gets you into a new TIMS MVP computer for a reasonable cost.

The support contract includes:

- Unlimited phone & remote access support (using GoToAssist).
- Unlimited access to our training documents and videos, or live training using GoToMeeting.
- Free software upgrades, of which there are usually 1-2 per year.
- Advance Replacement: if we are unable to resolve a problem with the TIMS MVP computer remotely, we will 2-day ship an advance replacement TIMS MVP to get you back up and running quickly.

Pre-sales Support

What if we have questions as we are considering the purchase of a TIMS MVP System?

Your account manager would be happy to provide any of the following:

- GoToMeeting demonstration of TIMS MVP which covers the entire workflow start to finish.
- Schedule conference calls to cover any technical issues for PACS, radiology or IT.
- Revised quotes, or any other supporting documentation required.
- Referrals to other satisfied TIMS MVP customers, in your area if possible, or from other hospitals in your healthcare organization if available.

Other Uses for TIMS MVP

Can TIMS MVP be used with more than one fluoroscope, or record other types of studies?

If you purchase your TIMS MVP on a mobile cart, it can be used in additional fluoro rooms. Each additional room would require an “Extra Modality Kit” as well for an added cost. TIMS MVP can, in fact, record video from ANY modality that outputs video. TIMS MVP is used to record: ultrasound, endoscopy, FEES, interventional radiology, CT, MRI, etc. Because of the inevitable scheduling conflicts that would arise, it often makes more sense to purchase a dedicated TIMS MVP for busy facilities.

Key Resources

Corporate Headquarters

TIMS Medical, a division of Foresight Imaging
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Main Phone: 978-458-4624
Support Hotline: 978-458-4624 x204
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Web Resources

Main website: www.tims.com
TIMS Demonstration: [Click Here](#)
TIMS Data Sheet: [Click Here](#)



Addendum

Average Study Sizes

TIMS MVP supports several compression algorithms, with Lossy JPEG being the most prevalent. This option provides the best compression, without compromising image quality. The table below provides estimated study sizes, based on studies being recorded at the recommended 30 frames per second. The top table should be used for most fluoroscopes which typically output at a resolution of 1024 x 1024.

Image size = 1024 x 1024 monochrome				
# of frames	time@30fps	uncompressed	lossless	lossy at good quality (18)
3000	100 seconds	3000 MB	1200 MB	250 MB
1400	46 seconds	1400 MB	570 MB	117 MB
1000	33 seconds	1000 MB	400 MB	83 MB
500	17 seconds	500 MB	200 MB	42 MB
100	3 seconds	100 MB	40 MB	8 MB

Image size = 512 x 512 monochrome				
# of frames	time@30fps	uncompressed	lossless	lossy at good quality (18)
3000	100 seconds	750 MB	300 MB	62 MB
1400	46 seconds	350 MB	140 MB	29 MB
1000	33 seconds	250 MB	100 MB	21 MB
500	17 seconds	125 MB	50 MB	10 MB
100	3 seconds	25 MB	10 MB	2 MB