Videofluoroscopic Swallow Study Procedure

1. Purpose

Videofluoroscopic Swallow Study (VFSS) is an instrumental assessment that may be used by speech pathologists to identify normal versus abnormal swallowing anatomy and physiology[1]. It can provide information about the aetiology and symptoms of dysphagia and the effectiveness of compensatory strategies and rehabilitative techniques which cannot be established in a clinical bedside swallowing assessment.

There are risks associated with the procedure for both patients and healthcare professionals who can be exposed to radiation. Patients are additionally at risk of aspirating contrast material.

The purpose of this document is to ensure the safe delivery of VFSS to adult patients, including competency, procedural and reporting requirements.

WACHS does not offer VFSS to paediatric clients (0 to16 years of age) because of the high degree of risk and complexity, and the skill level required of the speech pathologist leading the paediatric VFSS procedure. Paediatric clients must be referred to Perth Children's Hospital (PCH) for the appropriate instrumental swallowing assessment.

2. Procedure

2.1 Determining Site Eligibility for VFSS

The decision to offer VFSS service at a WACHS site will be made by the relevant clinical service leadership team. The feasibility of providing VFSS at a site is determined by several factors including:

- the availability of equipment
- access to radiologists and medical imaging technologists (MIT)
- the demand or need for VFSS at the site
- speech pathology staffing at the site and the capacity of local speech pathologists to develop and maintain the required competency
- if performed under TeleVFSS, a minimum of 5Mb/s data streaming is required for live streaming.

2.2 Staffing Requirements for VFSS

The following staff are required to conduct a VFSS:

- a VFSS-competent speech pathologist to direct the procedure and interpret results (as outlined in Section 2.3)
- a second speech pathologist to provide assistance during the procedure (does not need to be VFSS-competent)
- a medical imaging technologist (MIT) to operate the fluoroscopy unit.
- a radiology nurse (optional)

A radiologist must be present at the WACHS site and available to offer support as required. It is not essential for a radiologist to be present in the suite during the procedure,

but they must be consulted if there is a suspicion of anatomical abnormality (Speech Pathology Australia, 2024)

2.3 VFSS Competency Requirements for Speech Pathologists

A speech pathologist is considered VFSS-competent if they:

- have met the WACHS Minimum Standard for Videofluoroscopic Swallow Study (VFSS) (or equivalent) including the completion of the Modified Barium Swallow Impairment Profile (MBSImP).
- have completed site-specific radiology safety procedures with the MIT and supervising speech pathologist
- have at least one year of clinical dysphagia management experience prior to conducting VFSS

VFSS-competent speech pathologists are also recommended to have:

- completed the Radiation Training for Speech-Language Therapists course from the New Zealand Speech-language Therapists Association (NZSTA) (available to SPA members at NZSTA CPC Online).
- completed VFSS training provided by Royal Brisbane Women's and Children's Hospital (online or face-to-face).
- conducted a minimum of 10 studies per year in the first five years after obtaining competency, and 5 studies per year thereafter to maintain competency with adult patients.

A clinician with a gap in speech pathology VFSS practice of more than five years will require upskilling in VFSS, but not full completion of the VFSS competency process (see WACHS VFSS competency process).

2.4 Equipment Requirements for VFSS

Medical Imaging equipment:

- fixed fluoroscopy unit.

Personal Protective Equipment:

- lead apron
- thyroid protector.

Accessory Equipment:

- suitable chair or wheelchair that will not obstruct the radiation path or patient movement (dependent on the postural needs of the client)
- use of a suitable non-ionic contrast agent
- food and fluid samples of various consistencies
- feeding equipment (i.e. cups, spoons, straws, cut away cups)
- suctioning equipment
- other specialized equipment as required (i.e. measuring cups, tongue depressor, torch, tissues/wipes, emesis bags, swabs).

All staff are responsible for maintaining radiation safety during a VFSS clinic by adhering to relevant local site and WACHS-wide safety policies including the following:

- The speech pathologist must wear a lead apron and lead thyroid cover throughout the examination.
- The MIT will minimise radiation exposure for the patient during the procedure by following standard medical imaging guidelines (see WACHS Imaging Clinical Practice Standard).
- The speech pathologist will minimise radiation exposure for the patient during the procedure by clearly directing the MIT when to commence and cease screening.
- A speech pathologist who is, or may be, pregnant must remain behind the screen at all times during the examination.
- Radiation monitoring badges/dosimeters must be worn by speech pathologists at all sites when participating in VFSS examinations.

2.5 Clinical Indications for VFSS

VFSS is indicated for patients:

- when oropharyngeal dysphagia is suspected as part of a clinical examination, but the nature of the dysfunction has not been accurately defined.
- to assist with decision making process regarding oral versus non-oral feeding.
- to assess the presence of and severity of aspiration.
- to objectively assess the effectiveness of compensatory strategies.
- to obtain an objective baseline measure of swallow function prior to dysphagia rehabilitation and post rehabilitation as an outcome measure.
- when the results are likely to change the patient's management.

A speech pathologist must conduct a Clinical Swallowing Assessment (CSE) for all inpatients and outpatients prior to VFSS. Referral for CSE is as per local referral procedure. The CSE is to include the following:

- confirmation of a valid rationale for the procedure
- identification of any contraindications
- completion of the MR64A WACHS Speech Pathology Adult Clinical Swallowing Assessment form
- explanation of the VFSS procedure to the patient prior to the examination (written information may include WACHS VFSS Patient Information Pamphlet).

2.6 Contraindications for VFSS

VFSS is contraindicated when the patient

- is or may be pregnant
- has been deemed medically unstable for the procedure by the medical team
- is unable to maintain alertness for at least 30 minutes
- has difficulty maintaining an appropriate stable position
- has difficulty co-operating with the procedure
- has known or suspected adverse reaction to the contrast media
- is nil by mouth for reason other than dysphagia
- when appropriately trained staff are not present to support suctioning or ventilation/oxygenation needs for tracheostomised patients

2.7 Examination Procedure Request

The patient must have a valid imaging request from a medical officer for the VFSS procedure to occur, as per legislative requirements. Scheduling of VFSS procedures will depend on:

- policies and procedures of the service provider (i.e. prioritisation protocols)
- practice constraints
- staff availability
- procedure/equipment availability (e.g. clinic booking times, mechanical resources, appropriate fluoroscopic and recording equipment, VFSS patient chair)
- appropriateness of the client for the procedure (see section 2.5 and 2.6).

2.8 Consent

The patient must provide consent for the procedure in line with WACHS Consent to Treatment Policy. If the examination is conducted with the use of TeleHealth, patient consent for a video consultation must also be obtained and documented in the patient's health record (as per AHPRA).

2.9 Preparation of Food and Fluid Consistencies

The speech pathologist is responsible for:

- identifying the types of food and/or fluids to be trialled and the order of presentation (see Appendix A: WACHS VFSS Protocol to guide oral trials).
- preparing food/fluid immediately prior to the procedure and in accordance with food safety practices
- identifying specific metabolic, dietary or allergy requirements prior to the procedure
- mixing the food/fluid with a contrast agent to ensure radio-opacity
- ensuring the addition of the contrast agent does not alter the viscosity of the food or fluid being trialled.
    - A barium calculator can be used to determine the amounts of barium, water and thickener required to achieve specific barium concentrations and liquid consistencies (e.g. Steele Swallowing Lab Barium Calculator).

2.10 Contrast Agents

Contrast agents for VFSS are either barium sulphate or iodine-based water soluble contrast agents. It is important that speech pathologists have knowledge of the indication(s) and contraindication(s) of contrast agents, however it is recommended that joint discussions with speech pathology, medical and radiology occur when selecting contrast agents. Logistical factors (e.g. availability of stock) may also affect which contrast agents are used.

Barium is generally used for clients who are at risk of aspiration as it is relatively benign if aspirated in small amounts. Use of barium sulphate-based mixtures is contraindicated where there is suspicion of tissue perforation as it can cause mediastinitis.

ATTENTION

Gastrografin™ is contraindicated for use in VFSS - if aspirated it may contribute to life threatening pulmonary oedema and aspiration pneumonia.

2.11 VFSS Pulse and Frame Rate

The video or digital recording of the VFSS is to be captured and archived at a minimum temporal resolution of 25-30 frames per second[2] without compression so that adequate information regarding the swallow is available for later review. Image acquisition for patient positioning purposes prior to commencement of swallowing should be performed at a low frame rate to minimize radiation dose to the patient and staff. The optimum fluoroscopy pulse rate is 25-30 pulses per second[2].

2.12 Positioning of the Patient

The patient needs to be sitting upright in a stable, well supported position that enables adequate posture and position of trunk, limbs and head for swallowing. Patients may be examined in their wheelchair if the fluoroscopy unit can accommodate the wheelchair size. Ideally patients should be examined in lateral, anterior–posterior (AP) and occasionally oblique views. Seating should be able to accommodate each view.

2.13 Sequence of Bolus Presentation

A standardised protocol is to be followed to allow for comparison of repeat studies and assist interpretation. Information obtained from the clinical swallowing assessment should guide the progression of bolus presentation during the VFSS. Staff should follow the WACHS VFSS Protocol based on MBSImp, unless clinically indicated otherwise (refer to Appendix A). During the procedure the speech pathologist is to document the sequence of bolus presentation and manoeuvres trialled.

2.14 Ceasing the VFSS

The speech pathologist or MIT may choose to cease the VFSS at any time. This may occur due to:

- aspiration risk*
- equipment failure
- clinical deterioration of the patient
- suspected minimal to no oesophageal clearance for the bolus during trials
- reduced patient compliance
- the patient's request
- concerns for radiation exposure to patient.

*Ceasing a procedure due to evidence of aspiration must also consider:

- the degree of aspiration
- trial of compensatory strategies to avoid further aspiration
- presence and effectiveness of a cough response to the aspiration.

2.15 After the Procedure

If significant aspiration has occurred during the procedure:

- for outpatients, inform the radiologist onsite or hospital medical practitioner and request an assessment of the patient, clinical decisions regarding the further medical management of the patient are the responsibility of the attending medical practitioner
- for inpatients, inform the managing medical team, consult with physiotherapy for management of chest status if required
- follow local procedures for significant medical events or deterioration.

2.16 Reporting and Documentation

The speech pathologist will use the local site the radiology information system (RIS) picture archive computer system (PACS) for collecting images and must analyse and interpret each set of images. An immediate summary is to be documented in the patient medical record. A detailed VFSS report is to be written and included in the patient medical record and/or a copy forwarded to the referrer (see WACHS VFSS Swallow Evaluation Report Template).

A radiologist is to provide a brief report on the VFSS procedure, and a copy will be provided to the referring clinician.

The minimum speech pathology reporting standards are:

- views obtained
- anatomical features/abnormalities
- consistencies evaluated
- oral swallowing phase
- pharyngeal swallowing phase
- oesophageal scan
- results of interventions attempted (i.e. manoeuvres/postures).

3. Roles and Responsibilities

The VFSS competent **Speech Pathologist** is responsible for directing the procedure and interpreting results.

A second speech pathologist is responsible for providing assistance during the procedure (does not need to be VFSS-competent).

The **Medical Imaging Technologist** is responsible for operating the fluoroscopy unit.

The **Radiologist** must be available on-site and is responsible for providing consultation and support when required.

All staff are required to comply with the directions in WACHS policies and procedures as per their roles and responsibilities. Guidelines are the recommended course of action for WACHS and staff are expected to use this information to guide practice. If staff are unsure which policies, procedures and guidelines apply to their role or scope of practice, and/or are unsure of the application of directions they should consult their manager in the first instance.

4. Monitoring and Evaluation

Monitoring and evaluation of this procedure will be carried out by the Professional Lead Speech Pathologist in consultation with stakeholders. Regional evaluation of performance measures may include, but are not limited to:

- CIMS Datix incident data
- Regional Clinical Governance audit tools.

Evaluation, audit and feedback processes are to be in place regionally to monitor compliance with this procedure.

5. References

1. Speech Pathology Australia (2024) Videofluoroscopic Swallow Study (VFSS) Guideline. Available from www.speechpathologyaustralia.org.au

2. Swallowing Rehabilitation Research Laboratory.[Internet]. Videofluoroscopy Frame Rate [accessed 6/10/2025] Available from https://steeleswallowinglab.ca/srrl/best-practice/videofluoroscopy-frame-rate/

6. Definitions

Term	Definition
Barium	Barium is a chemical element used in the form of barium meal for the purpose of an xray contrast medium.
Dysphagia	Difficulty swallowing.
Videofluoroscopic Swallow Study	A radiographic instrumental assessment of swallowing.

7. Document Summary

Coverage	WACHS-wide
Audience	All staff
Records Management	Clinical: Health Record Management Policy
Related Legislation	Health Services Act 2016 *(WA)*
Related Mandatory Policies / Frameworks	• MP0122/19 Clinical Incident Management Policy • WA Health Code of Practice for Clinical and Related Waste Management • MP0175/22 Consent to Treatment Policy and Consent to Treatment Procedure • MP0095/18 Clinical Handover Policy • MP0171/22 https://ww2.health.wa.gov.au/About-us/Policy-frameworks/Clinical-Governance-Safety-and-Quality/Mandatory-requirements/Recognising-and-Responding-to-Acute-Deterioration-PolicyRecognising and Responding to Acute Deterioration Policy
Related WACHS Policy Documents	• WACHS Consent to Treatment Policy • WACHS Imaging Clinical Practice Standard • WACHS Allied Health Clinical Handover Policy • WACHS Pressure Injury Prevention and Management Policy • WACHS Medical Imaging Radiation Safety Management Plan • WACHS Personal Protective Equipment Procedure
Other Related Documents	• MR64A WACHS Speech Pathology Adult Clinical Swallowing Assessment • WACHS VFSS Swallow Evaluation Report Template
Related Training	Available from Northern Speech Services: • Modified Barium Swallow Impairment Profile (MBSImP)
Aboriginal Health Impact Statement Declaration (ISD)	The completion of an Aboriginal Health Impact Statement and Declaration (ISD) is required for all new and revised policy documents. For further information, please see the ISD Guidelines. ISD Record ID: 4832
National Safety and Quality Health Service (NSQHS) Standards	5.11, 5.12, 5.28
Aged Care Quality Standards	Nil
Chief Psychiatrist's Standards for Clinical Care	Nil
Other Standards	Nil

8. Document Control

Version	Published date	Current from	Summary of changes
3.00	13 January 2026	13 January 2025	• change of title from 'Videofluoroscopy' to 'Videofluoroscopic' • terminology and procedural updates to reflect best practice in VFSS.

9. Approval

Policy Owner	Chief Operating Officer
Co-approver	Executive Director Clinical Excellence Executive Director Nursing and Midwifery Services
Contact	Professional Lead Speech Pathology
Business Unit	Allied Health Program
EDRMS #	ED-CO-19-95296

This document can be made available in alternative formats on request.

Appendix A: WACHS VFSS protocol

Lateral View			
Volume	**Consistency**	**Instructions**	**Notes**
5 mL	Thin fluids	Small cup, “Take it all at once”	Not for analysis
5 mL	Thin fluids	Small cup, “Take it all at once”	
20 mL	Thin fluids	Small cup, “Take it all at once but hold it in your mouth until I tell you to swallow”	Oral control Swallowtail
Consecutive sips	Thin fluids	Normal cup or straw (whatever is normal for the patient) “Drink as you normally do” or “Drink as quickly as you can” for stress test	
5 mL	Subsequent Fluid*	Small cup or teaspoon “Take it all at once”	*Subsequent fluid as clinically indicated (mildly thick, moderately thick, extra thick)
20 mL	Subsequent Fluid*	Small cup or tablespoon (extra thick)	
Consecutive sips	Subsequent Fluid*	“Drink as you normally do” or “Drink as quickly as you can” for stress test	
Teaspoon	Puree diet		Residue measures
Diet progression as clinically indicated			
Further trials/compensatory strategies as clinically indicated			

Anterior-Posterior View			
20 mL	Safest fluid consistency	Normal cup	Pharyngeal contraction
Teaspoon	Puree diet	Ask radiographer to scan down the oesophagus	Pharyngeal contraction, oesophageal retention and retrograde flow

Acknowledgement: Sir Charles Gairdner Hospital, VFSS protocol