

Implementation and evaluation of speech language pathology medical imaging referring

BACKGROUND AND AIMS

- Speech pathologists (SLPs) use critical videofluoroscopic swallow study (VFSS) results to inform dysphagia diagnosis and treatment
- However in many countries, only doctors are authorised to complete VFSS medical imaging forms, due to radiation safety regulations [1]
- This impacts workflow and timely patient access to VFSS
- A model was established, where SLPs complete inpatient VFSS requests
- This model exists in some countries, but published evaluation is lacking

STUDY AIMS

To evaluate a new SLP VFSS referring model to determine:

- Service outcomes: efficiency and safety, compared to medical referring
- Implementation barriers, facilitators and sustainability factors

METHODS

This study is a mixed methods service implementation evaluation, examining

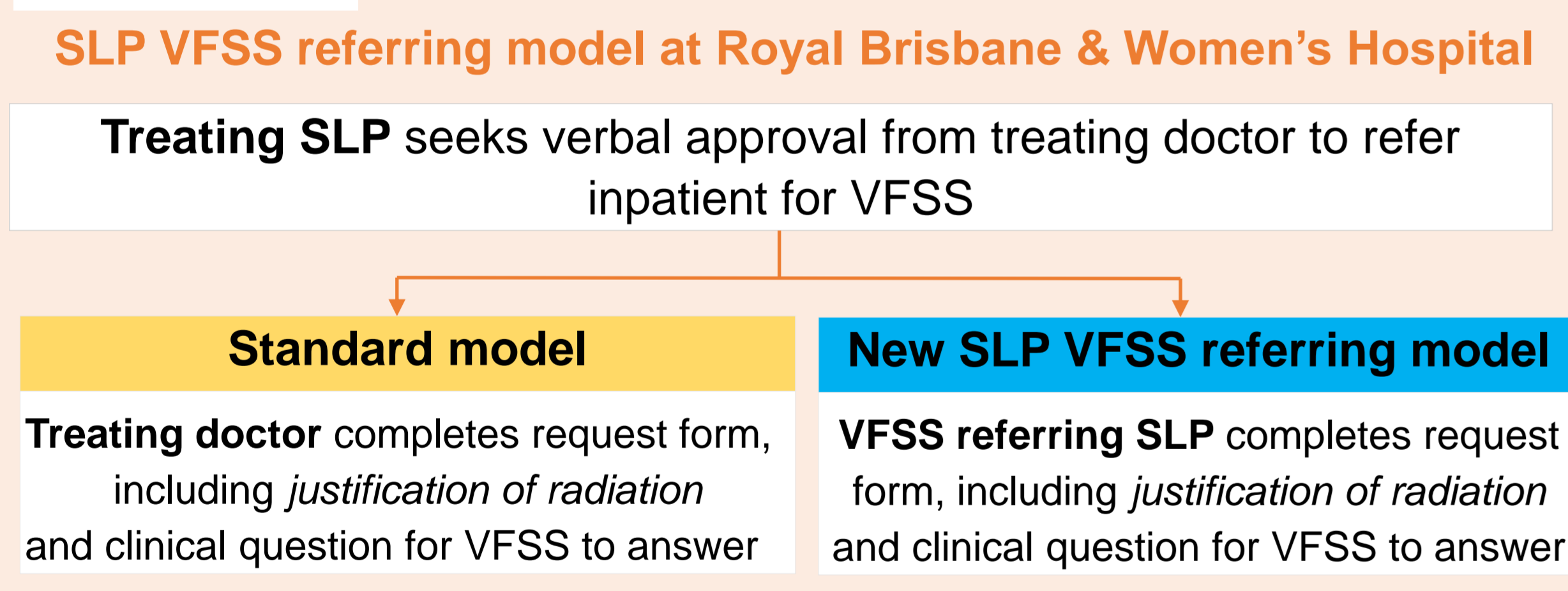
- Service outcomes, using descriptive statistics
- Implementation outcomes, using the Consolidated Framework for Implementation Research (CFIR) [2]

IMPLEMENTATION OF SLP VFSS REFERRING MODEL

The SLP VFSS referring model (Figure 1.) was implemented at Royal Brisbane & Women's Hospital (RBWH), as follows:

- Internal request protocol authorised by Director of Medical Imaging
- New model endorsed by Executive Director of RBWH Medical Services
- Consulted executive directors, treating consultants, SLPs and radiologists
- SLPs (N=7) completed ARPANSA [3] training on radiation safety and completion of request forms, adhering to RANZCR [4] standards

Figure 1.



EVALUATION OF SERVICE OUTCOMES

Pre- and post-implementation, measures were collected on:

Service Efficiency

- Number of days to complete VFSS request forms
- Number of contacts required to complete VFSS request forms

Radiation safety - audited by consultant radiologists

- Adherence to radiation safety standards for information on request forms
- Appropriate referrals (radiation exposure is justified)
- Clinical incidents

EVALUATION OF SERVICE IMPLEMENTATION

- The CFIR was used to guide data collection and analysis of factors determining implementation success
- Semi-structured interviews conducted with staff
- Data analysed to examine staff perceptions of implementation barriers and facilitators and sustainability factors

RESULTS

AIM 1: EVALUATION OF SERVICE OUTCOMES

- Standard model:** n=61 referrals written by doctors over a 3-month period
- SLP VFSS referring model** n = 112 referrals written by SLPs in 6-months

Efficiency

Table 1 compares efficiency of the standard model and the new SLP model

- No significant difference in time to complete forms – most within 1 day
- All patients in new model booked into VFSS clinic, within same week
- Two patients in standard model missed next VFSS clinic due to 7-day delay
- Most forms were completed after one contact event (e.g., phone call)

Table 1 Efficiency of completing VFSS request forms

Variable	Standard model		SLP referral model		Z	p value
	Mean (SD)	Range	Mean (SD)	Range		
Days delay to complete form	.49 (1.22)	0-7	.97 (1.455)	0-5	-3.065	.088
No contact events to complete form	1.15 (.401)	0-3	1.26 (.479)	0-3	-1.686	.003

Radiation safety

Figure 2 demonstrates that SLP VFSS request forms had higher compliance with RANZCR [3] radiation safety requirements than those written by doctors:

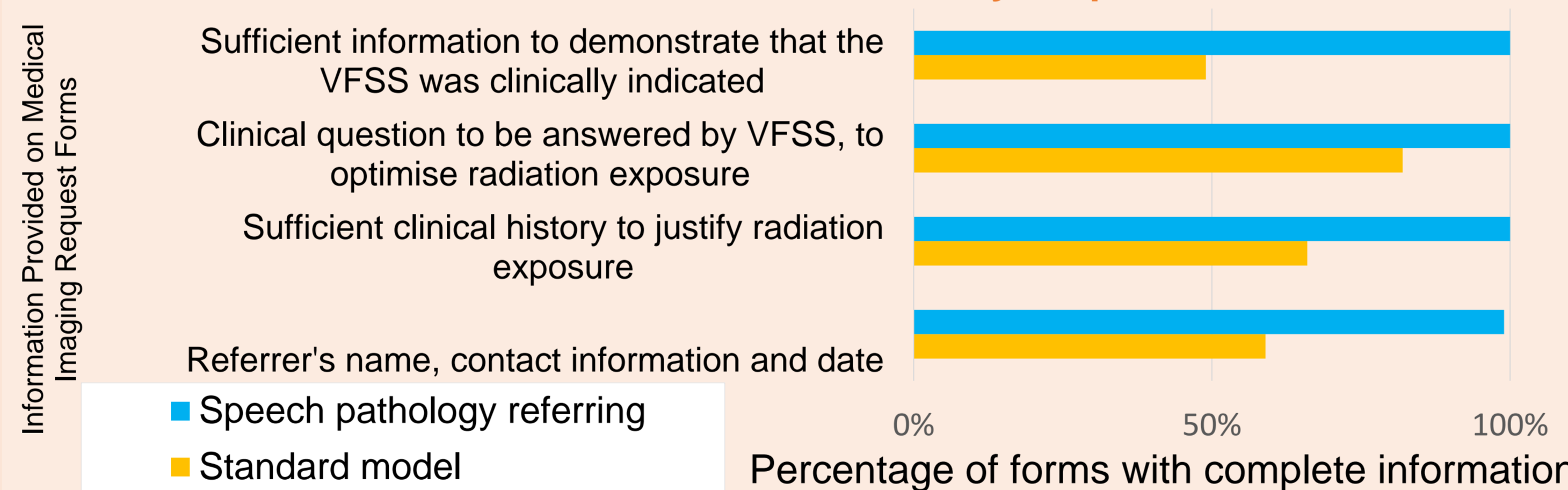
- Clinical history to *justify* radiation exposure (p<.0001)
- Clinical question to *optimise* radiation exposure (p<.0001)
- Information to demonstrate VFSS indicated (p<.0001)

All SLP VFSS referrals were appropriate

- No clinical incidents documented relating to radiation safety
- For 100% of referrals, VFSS changed clinical dysphagia management



Figure 2. Information Provided on VFSS Request Forms: Adherence to Radiation Safety Requirements



AIM 2: EVALUATION OF SERVICE IMPLEMENTATION USING CFIR

Staff interviewed:

- Treating SLPs (n = 30); VFSS referring SLPs (n = 7); radiologists (n = 2)
- Treating consultants (n = 8); registrars & resident medical officers (n = 18)

Key implementation facilitators and barriers are displayed in Table 2 and 3 respectively, with supporting quotes derived from interviews

Key factors facilitating implementation

Table 2 Key CFIR domains and constructs facilitating implementation

Intervention characteristics (features of the new model)
Relative advantage - of using the new model to facilitate efficient high quality VFSS referrals "Expediency of getting VFSS requests done. Also, SLPs are better able to explain on the request form the reasoning for the VFSS." SLP #8
Inner setting (features of the local context)
Networks and communication - strong, supportive networks between doctors and SLPs "There's a lot of trust in the allied health in specialty areas. I think that most doctors would be happy that that's the realm of SLPs to complete VFSS request forms." Doctor #15
Compatibility - pre-existing SLP skill-set was compatible with the new model "SLPs assess swallowing. Whereas an intern is not trained to assess swallowing, so it makes sense to have SLPs, who've done the bedside assessment and know what's relevant and what they're looking for, to complete the VFSS request." Radiologist #17
Available resources ** - adequate numbers of trained SLPs available to complete referrals "Having enough SLPs who are trained in filling in the medical imaging forms, who are actually on the ground on any given day." SLP #12
Process (implementation activities)
Engaging stakeholders - active involvement throughout the implementation process "We were educated quite well. Our champion has been very good at reminding us about the process. We've had posters around the department and meetings about how it was going to be." SLP #12

Key barriers to implementation

Table 3 Key CFIR domains and constructs describing barriers to implementation

Inner setting (features of the local context)
Available resources ** - insufficient trained SLP referrers available at service commencement "Initially negotiating the part-time workforce and people being on leave was a challenge" SLP #5

Critical factors required to support sustainability

- Sufficient number of trained SLP referrers available **
- Ongoing staff education
- Outcome monitoring of service

** Due to initial service delays, additional SLPs were trained to improve efficiency.

CONCLUSIONS

The new SLP VFSS referring model achieved positive service outcomes, compared to the standard model:

- ✓ Greater adherence to radiation safety requirements for VFSS referrals;
- ✓ Improved efficiency of patient flow;
- ✓ Workflow efficiencies and reducing doctors admin tasks

Successful implementation of the SLP VFSS referring model can be attributed to:

- The relative advantage of the SLP referring model, compared to the standard model, in providing benefits for patients and VFSS service delivery
- Local contextual factors, including strong support at all levels of the organisation and compatibility of the new referring model with SLP workforce skillset
- Robust implementation processes, including a project champion to educate and engage key stakeholders and highlight the need for increased resources to support the new model

Service sustainability factors include: ensuring adequate resources; ongoing staff education; evaluation and monitoring of outcomes, with modifications as required

The CFIR framework guided the planning, implementation and evaluation of the model, and highlighted the broader contextual factors that influenced the model's success

References

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