

HUME WHITTLESEA PRIMARY CARE PARTNERSHIP

THE COST OF PAPER AND OTHER NON-ELECTRONIC REFERRALS

Introduction

An effective referral system guarantees a close relationship between all levels of the health system and helps to ensure people receive the best possible care in a timely and appropriate manner. It also assists in making cost-effective use of hospitals and primary health care services resources, especially time.

Establishing effective and efficient referral and client information management systems is an increasingly major business resource consideration for a range of public and private health and well-being services. An increasingly integral element to good referral system design is how services measure and maximize their operational costs when receiving and coordinating client referrals.

Purpose

The purpose of this project is to benchmark the actual cost of continuing to use non-electronic referrals at Plenty Valley Community Health (PVCH). This project builds on similar projects conducted elsewhere in Australia and overseas (see references detailed in background section of this report). Plenty Valley Community Health merged with Dianella Community Health on 30th March 2018, to form DPV Health. This project only relates to the services that were provided by, the previously known service of Plenty Valley Community Health.

This project was funded and prepared by the Hume Whittlesea Primary Care Partnership (HWPCP) and was developed in response to the work undertaken as part of the Victorian eReferral Project (VeRP) funded by Department of Health & Human Services. The VeRP project involved stakeholders from Plenty Valley Community Health, Hume Whittlesea Primary Care Partnership, Department of Health & Human Services, Northern Health, North Western Melbourne Primary Health Network and Eastern Melbourne Primary Health Network.

This completed report was subsequently accepted by the Project Control Group for inclusion into the final Benefits Realisation Report.

Background

eReferral is a structured electronic document sent electronically between providers; content is encrypted for access only by the intended recipient; it contains consumer information formatted to enable better exchange of information and holds data elements that enable mapping between systems. The Victorian DHHS eReferral program requires that eReferrals be enabled by standards and specifications known as the National eReferral Reference Architecture which have been developed by the Australian Digital Health Agency.

The use of paper-based communication has been comprehensively mapped in terms of its impacts, specifically cost and security of medical health information. Internationally, billions of dollars are mismanaged, and millions of lives globally are lost due to preventable medical errors and delayed referrals. A study in the UK looking at public health systems found that:

1. 60-70% of referrals go unscheduled ¹⁰
2. 25% of scheduled appointments are missed ⁸
3. 68% of specialists receive no information from the general practitioner prior to referral visits ⁹
4. 25% of general practitioners do not receive timely information from specialist's post-referral ¹⁰
5. It costs nearly \$250 billion to process 30 billion healthcare transactions each year ¹
6. The average ratio of staff handling paperwork to doctors can be as high as 8:1 ²
7. 86% of mistakes made in the healthcare industry are administrative ³
8. Three of every 10 tests are reordered because results cannot be found ⁴
9. Patient charts cannot be found on 30% of visits ⁵
10. Providers need to fill out an average of 20,000 forms every year ⁶
11. Organisations, on average, make 19 copies of each document, spend \$20 in labor to file each document and lose one of every 20 documents ⁷

Paper referrals have been a long-time issue for hospitals, clinics, specialists and General Practitioners. An Australian study compiled a breakdown of an average cost per dental / medical paper referral. They found that:

1. Triplicate referral form (3 part form) = \$0.25 to \$0.45
2. Cost of copy paper/fax paper (.06 x 19 copies) = \$1.14
3. Cost of ink (.10 x 19) = \$1.90
4. Time filling out referral form, waiting for review, signature, and tracking of referral in excel/software or on paper, filing and retrieving a document, reviewing document for necessary information, follow up time on phone, and faxing ranges in most offices from 30 minutes to 60 min per referral
5. Does not include lost revenue from missed referrals, liabilities of those lost referrals, reduced patient care quality, potential reputation hit from patients, and cost to search for misplaced documents (Average \$125 dollars of labor to find a lost document)

Total average cost: \$40/referral¹²

Note: These costs can be a lot higher depending on wages of staff and doctors, cost of ink, paper etc.

*We used an average of \$50.00 an hour which includes doctor and staff time. (Most practices potentially are much higher considering doctor's wages average over \$100 – \$200 per hour)

1. Woodworth, Glenn. "2003: The Year of Medical Paperwork Simplification," Journal of Healthcare Information Management Winter 2003, vol. 17. no. 1, pp. 12-13.

1,2 Healthcare Financial Management Association

3 Woodworth , Glenn, "2003: The Year of Medical Paperwork Simplification," Journal of Healthcare Information Management

4,5,6 "A Healthy System," Technology CEO Council, 2007

7 PricewaterhouseCoopers

8 <http://ahcc.health.ufl.edu/chs/2002/Noshows.pdf>

9 <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1495590/>

10 2009 – 2011 Annals of Internal Medicine

11 Healthcare IT News

12 <https://getreferralmd.com/2012/02/medical-dental-referral-letter/>

Cost and Risk

Overall, health services are costing an increasing proportion of our national and personal income and to meet these increasing costs we must innovate. eHealth is one of the areas to gain efficiency and reduce costs, but faces many barriers to adoption.

By using an electronic referral software application, costs are dramatically lowered by reducing the hard costs and time needed to exchange and report on referrals. And most of all, the ability to capitalise on quick access to manage patient no shows and missed referrals that cost the provider potentially many thousands more in lost revenue. eReferral is seen as a key initiative that will provide significant improvements to the way information is securely shared and will improve efficiency and service delivery.

Understanding cost of processing referrals will enable organisations to make an informed decision on strategic planning regarding eReferral.

In a recent report, (May 2018) the Victorian coroner has criticised the medical profession's reliance on "antiquated and unreliable" faxes and called for national communication standards after a cancer patient's test results were sent to the wrong number and he died alone in a hotel room.¹¹

Project Scope

Scope of this project will be limited to the mapping and costing of all referrals received by Plenty Valley Community Health that are not sent securely and encrypted electronically. This project aims to answer the question: ***What is the cost of processing non-electronic referrals at this organisation, i.e. referrals received by telephone, mail, fax and in person?***

Methodology

In preparing this report, the electronic client referral information systems at PVCH were reviewed. This report used a quantitative approach comprising review of two main referral data sources which included:

- TrakCare: TrakCare is an electronic medical record (EMR) used by PVCH as their patient management system. It provides staff with information about their clients and stores a full medical/treatment record.
- Hard & soft copy referral record documentation: Referral reports can be generated from dashboards in TrakCare and this report is based on number of referrals received by PVCH over a 12-month period (May 2017 – April 2018). Other referral information was obtained from intake and reception staff collection of relevant referral information.

Time and motion studies were completed on identified workflows.

Work commenced with an initial meeting with the Project Manager of the Victorian eReferral Project in February 2018 and was completed by May 2018 which enabled time for final calculations and report writing. During this period the author undertook review and analysis in the following areas:

- Mapping the information flow of a non-electronic referral sent to Plenty Valley Community Health (i.e. a referral sent to PVCH by mail, telephone, fax, or personally [any referral that is NOT sent by a secure electronic pathway]) and based on a timed work-flow tracking of PVCH Intake and Administration staff activities
- Undertaking a time analysis for each of the different information flows
- Calculating the cost of each of the different information flows
- Final calculations and report writing

Month	Tasks completed
February 2018	Initial discussions held with VeRP project manager to confirm tasks and scope of project
March 2018	Meetings with relevant Intake and Reception Staff – <ul style="list-style-type: none"> • Intake workflows completed • Reception workflows completed
May 2018	<ul style="list-style-type: none"> • Time and motion studies completed on all identified workflows • Reception staff completed data sheets to identify number of <ul style="list-style-type: none"> ○ Clients presenting at reception requesting services ○ Clients telephoning reception requesting services ○ Referrals received by mail ○ Referrals received at Epping from Whittlesea site • Intake staff completed data sheets to identify number of acknowledgement letters sent to referrers • Final calculations and report writing

Project Limitations

This project is limited to referrals being received by Plenty Valley Community Health – Walnut Street site and Cooper Street site.

If an organisation installed an electronic system that **all staff** were able to access, further costs could be reduced. For example, clinical staff would be able to correspond in a secure electronic format with the referrer, send discharge information etc. etc.

Results

Process Mapping

Mapping of the processes involved in receiving non-electronic referral for service was undertaken at two of the DPV Health sites:

- Whittlesea Site: 40 – 42 Walnut Street, Whittlesea 3757
- Epping Site: The Northern Hospital Site, 187 Cooper Street, Epping 3076.

The mapping included the following scenarios:

- Client presents at reception
- Client telephones reception
- Referring organisation posts referral
- Referring organisation faxes referral

Workflow timing was undertaken for all tasks completed by PVCH reception and intake staff. Details of the tasks involved are included further in this document.

Costs

1. Wages

Cost of wages for the following positions:

- Intake Worker
- Receptionist
- Courier

and was based on classification of Clerical Worker CY3 – hourly rate \$23.80, plus oncosts of 30% (total hourly rate \$30.94).

2. Administration Costs

- Photocopy Paper: Ream A4 Paper \$4.99¹
- Printing: 1.4c Double sided, black & white²
- Envelopes: Box of DL envelopes \$19.00 per 500³
- Postage - \$0.98c per letter

3. *Vehicle*

Operating costs of a vehicle was based on a small car Hyundai i30 and information from the RACV website <https://www.racv.com.au/on-the-road/buying-a-car.html#operatingcosts>

4. *Exclusions*

- Capital or lease of equipment e.g. fax machines, photocopiers
- Infrastructure Costs
- Staff Establishment Costs
- Cost of confidential waste
- Cost to patient

Total Cost

The total annual cost for processing referrals that have **not** been sent by a secure electronic process is **\$14,587.76**

This is comprised of:

- Wages: \$13,046.41
- Other costs: \$1,541.35

This equates to a cost of \$6.94 per referral

Based on the wage of a Clerical Worker CY3, and total wage costs of \$13,046.41 as identified in this project, this equates to 11.10 weeks of work of 1.0 EFT

Discussion

Patient-centred care or integrated care gives prominence to the preferences, needs and values of consumers. Patients should be given information and power to be co-contributors to treatments and disease management. Medical records would be owned by patients. Health literacy would be considered, and decision tools would be developed for patients to assist with their health journey.

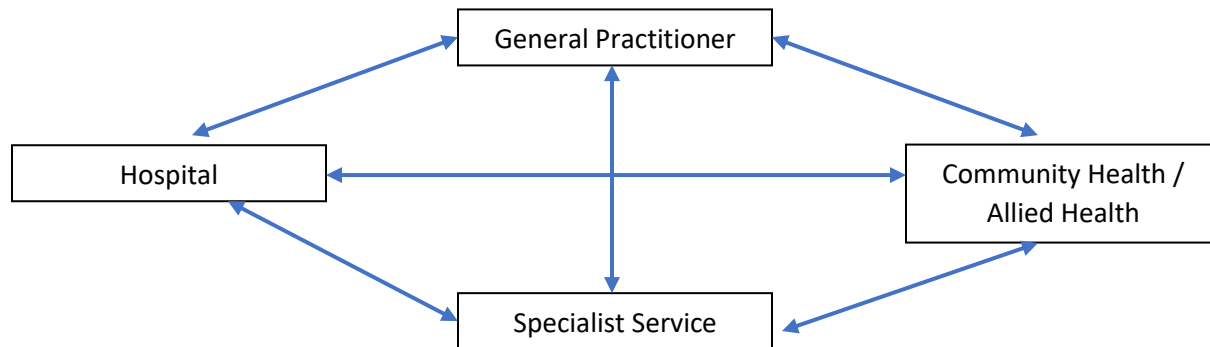
Evidence suggests that Australia has not moved sufficiently to a patient-centred model across key parts of the health care system¹². There needs to be acceptance by all in the healthcare sector, of a premise that patients are the centre of the system.

If the health system was a patient centred system, services would identify client needs and ensure the client received the right services, in the right place, at the right time. Understanding clients' wishes, their health needs and health literacy, some clients could be given a telephone number or address to navigate the health system. To meet the needs of all clients a responsive referral system would provide a pathway to meet the needs of all those who access the health system and eReferrals would be forwarded to the appropriate service as part of an integrated

model. The system should meet the required needs of the client from information provision to a formal referral pathway.

Costs of referral

In an example of a patient with a chronic disease, type II Diabetes, the patient may be referred to many services and information will flow between these services.



Based on best practice guidelines and an approximate cost of a non-electronic referral of \$6, each time this information is shared, patient referred, referrer advised of outcome of appointment or patient discharged, there is a cost involved. This cost is either an electronic cost (securely & encrypted) or paper based, telephone or fax.

Task	Approximate Cost
GP refers patient to Hospital	\$6
GP refers patient to Community Health	\$6
GP refers patient to Specialist	\$6
PVCH acknowledgement of referral	\$3.08 each acknowledgement

An effective eReferral system will acknowledge the referral once it has been received. For Plenty Valley Community Health, the cost of acknowledging each referral by mail is estimated at \$3.08 (letter, postage, mail, staff costs).

Organisations would also advise the referrer when the patient has an appointment. An effective eReferral system would be able to respond electronically.

Each part of the information cycle has a cost element – as this project scope was mapping and costing of all referrals that were not received securely and encrypted electronically, other costs have not been determined, for example, discharge information to referrer.

This basic model does not account for further referrals to other services e.g. private allied health services, optometry, dental, or any services that may address the social determinants of health. This layered cost of referrals for one patient will exponentially increase across the service system. Additional activities such as:

- *Organisations to advise GP the patient has an appointment;*
- *Organisations to advise GP outcome of referral;*
- *Organisations to advise GP when patient has been discharged (and other referral processing tasks), will therefore add to the overall referral episode costs.*

In emerging State policy terms, understanding and managing the layered costs per patient referral, becomes a critical consideration with the important shift towards improved service alignment and connectivity between health and human services

In this Benefits Realisation Final Report, General Practitioners estimated the time taken to process paper referrals.

Total time taken for 47 GPs to send 47 referrals (one referral each) – 151 minutes, making an average time for each referral 3 min 21 secs. Costing of this would depend on tasks completed by General Practitioners, Practice Nurse or Administration staff, but 40% of GPs estimated that the average time costs to send a referral was between \$4 to \$6 per referral.

In this Benefits Realisation Final Report, Northern Health estimated they would save \$52,231.00 annually by using an electronic referral system.

Future Considerations

This report has provided a series of important points that highlight both the current complexities and future benefits in measuring current referral pathway system activities and their costs. Learnings from this work can importantly inform the adoption or extension of electronic referral arrangements by services as they seek to better coordinate patient centered care. Although not exhaustive, the following questions are provided to guide future discussion and action.

- What is the role of My Health Record? Does the opt out model of My Health Record assist with information sharing for all services e.g. discharge summaries, health summaries?
- For General Practices to be eligible to receive the eHealth incentive, practices must have standards-compliant secure messaging capability. Is this an opportunity to apply similar incentives to other health services?
- ADHA Secure Messaging Interoperability Proof of Concept trials – If these trials are effective, what decisions will organisations need to make to ensure they become compliant and do they have resources and knowledge to make the correct decision regarding a secure messaging provider?
- Is there a linking to, or a role for, the National Health Services Directory?
- Client considerations: what is the impact to the client of a low care referral system?
- What is the reputational damage to a service provider of a low care referral system?

STEP 1: REFERRING ORGANISATION

STEP 2: RECEPTION

Client telephones reception

Whittlesea

Transfer client to Epping reception

Epping

Transfer client to intake

Client presents at reception

- Whittlesea** - Client presents with hard copy of referral
- Photocopy referral (give original back to client)
 - Scan referral
 - Email intake the details of referral
 - Destroy photocopied document

Destroy document

- Whittlesea** – clients presents without a referral
- Client is given Epping phone number to ring

- Epping** – clients presents without a referral
- Client is given Intake phone number to ring

- Epping** - Client presents with hard copy of referral
- Photocopy referral (give original back to client)
 - Scan referral
 - Scanned referral is dragged into Fax Folder and renamed
 - Destroy photocopied document

Referring organisation faxes referral to reception

Whittlesea

- Hard copy fax received
- Scan & check
- Email to intake
- Rename & place in electronic fax folder
- Hard copy destroyed in confidential bin

Epping – electronic fax

- Fax is dragged into fax folder & renamed
- Emailed to intake service
- Printing only occurs if fax is upside down (if this occurs – print & rescan into fax folder, rename and email intake)

Referring organisation posts referral – Reception

Whittlesea

- Collect mail from post office
 - Open mail & date stamp
-
- Scan document
 - Email intake
 - Rename document and save in fax folder
- OR
- Place referral in internal envelope
 - Courier mail to Epping Site

Epping

- Collect mail from mail room
 - Open mail and date stamp
 - Referrals are scanned and emailed to intake
 - Scanned document is renamed and dragged into fax folder
- Internal Mail Received
- Referrals are scanned and emailed to intake
 - Scanned document is renamed and dragged into fax folder

ELECTRONIC REFERRAL VIA SECURE MESSAGING SERVICE
These referrals will skip Steps 1 & 2 and begin processing at Step 3

STEP 3: INTAKE SERVICES

STEP 3: INTAKE SERVICES

Open referral in Intake Inbox in Outlook

Drag referral onto desktop
Open Referral
Review Referral
Check 3 ID's and ensure all pages are contained in referral (eg 8 of 8)

Insufficient Information to Progress Referral - Options

Contact referrer to obtain further clinical information
Contact client to obtain further client details
Check TrakCare for further details

Referral Declined as service not provided or incorrect process or inappropriate referral

Check TrakCare entry
Check Intake Database Entry
Contact referrer
Print letter, envelope, stamp

Advise Referrer of outcome of referral

Letter printed, signed, enclosed in envelope
Place in mail tray
Mail taken to reception area (twice daily)

ELECTRONIC REFERRAL VIA SECURE MESSAGING SERVICE
These referrals will skip Steps 1 & 2 and begin processing at Step 3

STEP 3. FURTHER STEPS TO PRIORITISE ACCESS TO SERVICES FOR CLIENTS WILL OCCUR

THESE STEPS ARE THE SAME FOR ALL REFERRALS RECEIVED

Breakdown of Costs – Intake Processes

	Tasks	Annual Number	Estimated or Data Source	Total annual hours	Total Annual Cost including oncosts
1	Faxed Referral Referral arrives in Intake Inbox in Outlook - previously scanned by reception staff	2059	TrakCare	17.93	\$554.73
2	Client telephones Intake Service Measures time taken to obtain information from client (basic demographic information, clinical information etc. which would have been already received with an eReferral)	818	TrakCare Data	61.08	\$1,889.94
3	Insufficient information to progress referral - Contact referrer to obtain further clinical information - Contact client to obtain further client details - Check TrakCare for details	30	Annual number estimated	38.00	\$1,175.85
4	Writing to client/referrer for further info	4	Estimated	0.73	\$22.52
	Printing each letter / page	4	1.4		\$0.06
	Cost of Paper	4	0.00998		\$0.04
	Cost of envelope	4	0.038		\$0.15
	Cost of postage	4	0.98		\$3.92
5	Referral Declined as service not provided or incorrect process or inappropriate referral	45	TrakCare Data	8.19	\$253.35
	Printing each letter / page	45	1.4		\$0.63
	Cost of Paper		0.00998		\$0.45
	Cost of envelope		0.038		\$1.71
	Cost of postage		0.98		\$44.10

- *Estimated Data is based on counting a small sample over 2/3 weeks
- ** <https://www.racv.com.au/on-the-road/buying-a-car.html#operatingcosts>
- *** These costs are sourced from a comparable community health centre

6	Advise Referrer of outcome of referral				
	Letters printed, signed, enclosed in envelope, and place in mail tray	2002		61.17	\$1,892.88
	Cost of Printing each letter /page - double sided (1 page)	2002	1.4		\$28.03
	Cost of Paper	2002	0.00998		\$19.98
	Cost of envelope	2002	0.038		\$76.08
7	Mail Walk from Intake to Reception	250		7.22	\$223.48
8	Errors	312	Estimated	6.11	\$189.06
	Duplicate Faxes - checking				
	Referral sent to Intake in error				
Total Cost Intake				200.42	\$6,376.95

- *Estimated Data is based on counting a small sample over 2/3 weeks
- ** <https://www.racv.com.au/on-the-road/buying-a-car.html#operatingcosts>
- *** These costs are sourced from a comparable community health centre

Breakdown of Costs – Reception Processes (Epping & Whittlesea Sites)

	Tasks	Annual Number	Estimated or Data Source	Total annual hours	Total Annual Cost including oncosts
1	Client presents at Reception - Given Intake phone number to contact	378	Estimated	3.15	\$97.53
2	Client presents at reception with referral		Estimated		
	Photocopy Referrral (time)	41		3.15	\$97.53
	Cost of Photocopy	41	1.4		\$0.57
	Scan referral - Dragged into Fax folder & renamed	41		1.06	\$32.73
3	Client Phones Reception - transferred to intake	1350	Estimated	11.25	\$348.11
4	Electronic faxes processed	2059	TrakCare	60.49	\$1,871.89
	Print out fax if received upside down (3 pages per fax) - time	750	Estimated	19.43	\$601.14
	Rescan printed out fax and place into fax folder	250		7.35	\$227.28
	Cost of printing - estimated number	250	1.4		\$3.50
5	Referrals received by mail - Sorting incoming mail - open mail & date stamp	472	Estimated	3.28	\$101.43
	Scanned into Intake folder	472	Estimated	13.87	\$429.11

- *Estimated Data is based on counting a small sample over 2/3 weeks
- ** <https://www.racv.com.au/on-the-road/buying-a-car.html#operatingcosts>
- *** These costs are sourced from a comparable community health centre

6	Courier Whittlesea to Epping				
	No. of days (annually) referrals are sent by courier from Whittlesea site to Epping site	41	Estimated		
	Courier Travel Time - 1 hour each trip	41		41	\$1,268.68
	Total annual kms Whittlesea / Epping / Return (50 kms each trip)	2050			
	Total annual cost of vehicle*	\$8,142.50			
	% of kms used for courier to Whittlesea / Epping (Based on RACV average 15,000 kms annually)	14%			
	Annual Cost of vehicle for courier				\$1,112.81

7	Postage Scanning of mail (time)	2002		1.83	\$56.54
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8	Cost of mail (Postage) 0.98c per letter	2002	0.98		\$1,961.96
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9	Mail drop off & pick up - Epping	250		28.06	\$868.13
	Mail drop off & pick up - Whittlesea	250		27.29	\$844.50

Total Cost - Reception				221.20	\$8,210.81
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Annual Hours			421.62	
Annual Wage Costs				\$13,046.41
Other Costs				\$1,541.35
TOTAL COSTS				\$14,587.76
Number of annual referrals received (TrakCare Data)			2102	
Cost per referral				\$6.94

- *Estimated Data is based on counting a small sample over 2/3 weeks
- ** <https://www.racv.com.au/on-the-road/buying-a-car.html#operatingcosts>
- *** These costs are sourced from a comparable community health centre