

**Electronic sharing of diabetes and related
cardiovascular data between general practices and
Divisions of General Practice**

**Centre for General Practice Integration Studies,
University of NSW**

Final Report

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**Contracted by the
COMMONWEALTH OF AUSTRALIA
Department of Health and Ageing**

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Introduction

The *Electronic sharing of diabetes and related cardiovascular data between general practices and Divisions of General Practice* project was contracted to the Centre for General Practice Integration Studies, University of NSW by the Australian Government Department of Health and Ageing from June 2004 to end of March 2005.

The aims of the contract were to:

- Support the continued use of CARDIAB as a Division register/recall system through the transition from the existing paper based system to electronic data messaging from Medical Director using Argus.
- Encourage the adoption of connectivity and electronic data sharing through other products, based on the standards and systems developed under the *Developing HL7 messaging standards for communication between GPs and Divisions* project.
- Support the move towards sharing data through connectivity and standards based communication.

There were three stages to the project:

1. Assessing the interest and readiness of CARDIAB Divisions;
2. Installing and supporting the early adopter Divisions and establishing training; and
3. Supporting Divisions to implement the system at a later time plus encouraging wider adoption by the software industry for diabetes messaging standards and data sharing/connectivity more generally.

This final report describes the achievements and results that have been made against the deliverables, discusses the issues and lessons learnt, future directions and suggests recommendations for future Division register/recall systems and the implementation of electronic messaging from the GP desktop to the Division.

Achievements and results

The following is a summary of the project achievements and results against the deliverables (in bold) in the contract.

Project governance plan

This was sent to AGDHA at the end of June, 2004. Attached at [Appendix 1](#).

Agreement with subcontractors

Signed agreements were obtained in June/July 2004 from Intouch Consultancy Pty Ltd and ArgusConnect Pty Ltd and letters of agreement from the Health Communication Network and the Health eSignature Authority.

Report on assessment of Divisions/general practice market amongst CARDIAB Divisions of electronic data messaging system using CARDIAB

A market assessment was conducted and results sent to AGDHA at the end of September, 2004. Results suggested a significant number of Divisions see data sharing and messaging important. Other findings included:

- The use of CARDIAB had reduced substantially.
- 5 Divisions reported they were interested in implementing the diabetes messaging system in 2004, 5 in 2005 and 2 Divisions after 2005.

The market assessment report is attached at [Appendix 2](#).

Application to seek GPCG funding to support a Divisions' showcase conference

A funding submission was sent to the GPCG on October 13th 2004.

The aims of the submission were:

- To review the needs and opportunities for connectivity and data sharing between Divisions and GPs, especially for chronic disease management.
- To review the achievements and set future directions for connectivity and data sharing for diabetes and chronic disease management.
- To raise awareness about recent developments in messaging and data transfer, including diabetes data transfer between GPs and Divisions.
- To assist GPs, Divisions and software developers to develop and implement messaging and data sharing systems.
- To identify future directions for connectivity and data sharing related to diabetes and chronic disease management

After follow-up, no response has been received from the GPCG.

The submission is attached at [Appendix 3](#).

Marketing and installation of electronic data messaging in a minimum of six Divisions.

Eight Divisions were interested in being early adopter Divisions. To date, two Divisions have installed messaging and three are planning to install messaging.

Information and training was provided to six Divisions.

Following is a summary of the Divisions that wanted to be an early adopting Division for diabetes messaging.

- The Southern Highlands Division has installed messaging at four group practices and is planning further installations.
- The Whitehorse Division has installed messaging at one practice and is ready to install at others.
- Dandenong Division has planned installations for April.
- Macarthur Division has planned installations for early May.
- Hastings Macleay are planning installations once Sonic Healthcare¹ can assist after the pilot in Macarthur and the Southern Highlands Divisions.
- The Riverina Division is no longer going to use CARDIAB – It was used only for recall. The Division is supporting practices to manage their own recall.
- The Mid West Division also wanted to implement messaging to CARDIAB that was maintained at the Health Service. However, funding was cut at the Health Service so the Division is now seeking alternative solutions to keep CARDIAB going.
- Liverpool Division was also interested but there were other priorities ahead of diabetes messaging.

Review as per GPCG Evaluating Messaging Project Report 2003 and scope appropriate alternatives.

The review and scope were undertaken and sent to AGDHA on March 7th 2005.

There were two recommendations in the scope:

¹ Sonic Healthcare will provide technicians to do practice installations for diabetes messaging. It will be piloted in the Macarthur and Southern Highlands Divisions first and if successful move to the other early adopting Divisions that want assistance.

- That clinical software vendors be encouraged to drop the diabetes messages into a directory that is accessible to all messaging systems and that the *Diabetes Message Implementers' Specifications* could be updated to include this as a requirement; and
- That messaging system vendors be encouraged to allow seamless exchange of messages between messaging systems.

The scope is attached at [Appendix 4](#).

Establishment of help desk support and maintenance of help desk for first 6 months of the project.

Help desk support was established and is ongoing. ArgusConnect is providing free support for Argus, HCN is supporting Medical Director and CGPIS has been providing CARDIAB support as well as coordinating the technical support for the early adopter Divisions.

The help desk support is working well.

Establishment of general practice system support and maintenance of system support for first 6 months of the project.

Practices have access to the same help desk support as outlined above. They also have program support from their Division. The Divisions are also coordinating the technical installation at practices.

Progress Report

Two Progress Reports were completed. One at the end of September 2004 and the other the end of December 2004. These are attached at [Appendix 5](#).

Development of training program for future uptake of electronic data messaging using CARDIAB and establishment of arrangements for ongoing user-pays (or alternative) support

Six of the Divisions attended a workshop or were provided with training at the Division. One Division opted not to join the training but to seek support when needed. The workshop was facilitated by the CGPIS and ArgusConnect. The training program agenda and presentation is attached at [Appendix 6](#).

A Diabetes Data Messaging Kit was also developed. The Kit has two sections: The Program Managers Manual and the IT Support Manual.

- The Program Managers Manual provides information to assist the Division implement electronic diabetes data messaging. It contains a Powerpoint presentation for practices on diabetes messaging, a flash demonstration of CARDIAB, information for GPs about the messaging system and what other uses the messaging system can be utilised for once installed.
- The IT Support Manual provides technical information to install, test and use Argus, to install HeSA PKI, configure and use Medical Director for diabetes data messaging and configure and use the CARDIAB diabetes data import.

The Kit was referred to in the training workshop and Divisions. Feedback on the Kit will be sought as the Divisions implement messaging. The Diabetes Messaging Kit (without the electronic resources) is attached at [Appendix 7](#).

The training program is now available for future Divisions wanting to implement messaging from Medical Director to the Division using Argus.

Conduct a meeting with the software industry and other stakeholders (including representatives from the GPCG Interoperability and Decision Support Technical working group and HL7 Systems and Services), to assist the software industry's decision to incorporate similar capacity in their products.

After consideration of the software industry meeting and discussing it with the project's advisory group it was considered premature to hold a meeting as set out in the contract. This was because implementation had not proceeded as far down the track as was anticipated and there were less Divisions than originally thought that were implementing diabetes messaging.

Instead of the meeting the CGPIS proposed to disseminate information to stakeholders through a bulletin. It would inform AGDHA, NIDPWG, ADGP, SBOs and DGP on a range of topics relating to registers and to what they tell us about diabetes care in general practice. It would include a review of the use of Division registers, considerations for the National Quality and Performance System and new findings from the National Divisions Diabetes Program and Divisions Diabetes and CVD Quality Improvement Program data. This proposal was accepted and will be sent to AGDHA and distributed broadly in early April.

Discussion

The number of Divisions using CARDIAB and implementing electronic diabetes messaging is lower than anticipated. To date two Divisions have implemented messaging and three are planning implementation. There are a number of lessons that have been learnt to assist future implementation of data messaging from practices to Divisions as well as further development of Division registers.

The two Divisions that have installed diabetes messaging are very supportive and enthusiastic about it. Both are continuing to roll-out installations at practices as diabetes messaging is taking less time for the GPs to provide the data and less time for the Divisions to import the data. Also, the Southern Highlands Division is getting more data per patient and more new patient registrations from the GPs who have moved to electronic messaging. Using the paper based system, new registrations required extra time and paperwork for GPs. This may have deterred new patient registrations.

Although the timeframe for other early adopting Divisions has slipped, out of the initial ten Divisions interested at implementing diabetes messaging in 2004 and 2005, at least five will have messaging installed before the end of this financial year. Macarthur, Dandenong and Hastings Macleay are planning to begin installations within the next month or so.

There are a number of reasons why implementation of diabetes messaging at Divisions has been slower than anticipated?

The reasons include:

- The reduction in the use of CARDIAB by Divisions and GPs;
- The low capacity of Divisions for information management and technology;
- Concern about the diabetes assessment in Medical Director effecting the GP workflow; and
- Development time for the new version of Argus.

The use of CARDIAB peaked at 28 Divisions but decreased substantially from 2003 to 2004 as reported in the market assessment results. While 11 Divisions were continuing to use CARDIAB, seventeen had stopped using it. The main reason for this, cited by Divisions, was the cut in Chronic Disease Management funding to Divisions (n=4), followed by poor data quality as GPs were not sending assessment results (n=2), a lack of electronic messaging to streamline the capture of the data (n=2) and CARDIAB not meeting the Divisions expectations (n=2). These results were consistent with what we found in the GPCG Division's Capacity Project².

As well as a reduction in Division use of CARDIAB there has been a reduction in GP participation in CARDIAB. In order to encourage greater practice participation in electronic diabetes messaging it is important to address the barriers identified in the Market Assessment Report that impact on the level of practice interest. These include the barriers relating to technology and technical support, GP use of clinical software and the business case and value for GPs.³

Implementation has also been slowed because of the low capacity of Divisions to implement diabetes data messaging. The market assessment indicated that Divisions require technical support, training and education, marketing assistance and funding to increase their capacity. A considerable proportion of interested Divisions (38%) and their practices (46%) do not have access to technical support that could assist with the installation and ongoing support of the diabetes messaging system.

The experience of implementation has confirmed that most Divisions require assistance to boost their capacity. At the Southern Highlands Division ArgusConnect assisted with practice installations and provided training to two contracted technicians. CARDIAB Messaging and Argus were also installed at the Division and staff were given on-site training on the use of the system by the CGPIS. At the Whitehorse Division staff were trained by ArgusConnect and CGPIS and were assisted with their first installation. Since then, the Division has completed a practice installation with some Help Desk support. The installer was a Division staff member who is not a technician. The Macarthur, Hastings Macleay, Mid West and Liverpool Divisions would not have considered diabetes messaging if technical assistance for installations and free ongoing technical support for Argus was not provided.

While many Divisions reported they had limited capacity to implement diabetes messaging there have been developments over the course of this project that will assist Divisions with implementation. The development of Argus V4 has reduced the time and complexity to complete installations. ArgusConnect are also now piloting remote upgrades of Argus. This will take further pressure off Divisions to provide technical support to practices sending diabetes data to the Division. Sonic Healthcare has also agreed to install the diabetes messaging system at practices in the Macarthur and Southern Highlands Divisions once their technicians have been trained by ArgusConnect. This will be a pilot project for Sonic Healthcare as it is the first time they have worked with Divisions in this way. If successful they will provide the same support to the other early adopting CARDIAB Divisions.

² CGPIS, ADGP, The Chronic Illness Alliance. The General Practitioners' Information and Data Exchange Divisions' Capacity Project. Project (2003) 4 RFT 72/0203

³ see the section Drivers and barriers to electronic messaging in the Report on the assessment of DGP / GP market amongst CARDIAB Divisions at Appendix 2

Concerns about the diabetes assessment in Medical Director impacting on the GP workflow were seen as a barrier to getting GP participation. Solutions were offered to HCN but due to other priorities no enhancements were made. (See [Appendix 8](#) for suggested enhancements)

Other problems were also identified during implementation. One was the inability of the GP to alter patient consent if the patient changed their mind after the consent box was ticked in Medical Director. The only way the GP can stop the patient data being sent to the Division is not to enter new results into the diabetes assessment or to disconnect Argus. This problem has not been resolved.

Another problem was that when the diabetes message was being sent by a practice nurse the message did not include the GP name. As HCN was not prepared to make changes to Medical Director, CARDIAB was enhanced so that the correct GP could be chosen from a drop down box and matched to the patient.

Implementation has also been slower than anticipated as Divisions waited, on advice from ArgusConnect, for ArgusV4. ArgusV4 has only just completed testing with diabetes messaging. It is now available for Divisions to install. ArgusV4 is faster, more stable and easier to install compared to ArgusV3.

The CGPIS with ArgusConnect will continue to support and work with the early adopting Divisions to implement messaging. This support will be provided through training, help desk support, CARDIAB assistance and added technical assistance for installations through Sonic Healthcare starting with the pilot Divisions. This continued support by the CGPIS and ArgusConnect will be provided out of other resources.

Future directions

While the use of CARDIAB has decreased since 2003 there has been greater interest in Division registers judging by enquiries the CGPIS has had for CARDIAB over the last few months. This appears to have been stimulated by the requirements of the new Division reporting system. Divisions are looking for registers that are flexible and have a greater capacity to collect data and provide reports that meet the needs of the Division, GPs, consumers and AGDHA. In its current form CARDIAB does not meet all these needs. CARDIAB is also currently very dependent on Medical Director to make changes required to support evolving needs.

Due to limitations in CARDIAB, the CARDIAB Alliance is discussing the development of the next generation CARDIAB with Pen Computer Systems. The next generation CARDIAB will incorporate the current functionality of CARDIAB but would be enhanced at both the Division register and clinical software ends to add value to the system for all stakeholders. This will go ahead if the environment is right.

The CGPIS have also written a paper that sets out some of the things that need to be got right to establish a sustainable system for collecting patient data from practices and sending it to the local Division for collation and feedback, and then to a national centre for further collation, analysis and reporting at the national level. (See [Appendix 9](#) - Initial outline for the establishment of CARDIAB 2⁴ as a sustainable system for supporting Division reporting)

⁴ 'Cardiab 2' is shorthand for an information system based on the functionality of Cardiab but extended to meet the needs for a Division reporting system and translated to a more up to date platform

To be sustainable, such a system will need to build on our experience with CARDIAB to:

- provide feedback to GPs and practices on their performance and comparisons to peers as well as for GPs to get more targeted support from the Division particularly relating to quality improvement;
- support the Division's practice and GP support programs, assist them to manage and plan programs, provide feedback on Division performance compared to other Divisions and assist with reporting and accreditation requirements;
- provide standardised data that can be aggregated at the national to give AGDHA information about Division performance and its relationship with quality and outcomes of care in general practice.

It will need to be patient based so that patients can be linked to more than one provider.

The practice clinical system will need to:

- be minimally intrusive to GP workflow;
- be adaptable to meet changing needs and standards.
- drop data for messaging into a directory that is accessible to messaging systems.
- have rigorous consent features so that patients can opt in and out when they want without effecting the quality of their clinical care.

Recommendations

The following recommendations have been developed based on our experience with this project, CARDIAB, the National Divisions Diabetes Program, Divisions Diabetes CVD Quality Improvement Program, the GPCG Divisions' capacity project and the National Quality and Performance System.

- Take a staged approach from a few Divisions to many and from a few practices per Division to many practices per Division. This is needed due to the low capacity of Divisions but also because they like to test the water to make sure the system is working and meets their needs before committing further resources.
- Strengthen Division capacity. Divisions require technical support, training and education, marketing assistance to increase GP participation and funding to increase their capacity.
- Provide Divisions and GPs with assurance that they will not have to pay for technical and ongoing support and that the messaging system is essentially free.
- Develop a strong business case for all stakeholders including Divisions, GPs, consumers, AGDHA and the clinical software industry. Barriers that need to be addressed in the business case include information technology and technical support, training and education, the value for all stakeholders, GP use of clinical software and cost.

Conclusion

Over the next couple of years, as recommendations from the Division Review are put in place, there will be greater incentives for Divisions to electronically collect clinical data from GPs. Setting this up will need time, resources and ongoing support for Divisions. Making sense of and using the information effectively will require further support and expertise. Benefits for GPs, consumers, AGDHA and software vendors will be important.

This project has shown that there are opportunities to work with Divisions and their practices to improve data transfer and connectivity within the diabetes project and beyond. Once the messaging system is in place at Divisions and practices its use can be extended to a wider variety of electronic data and information transfers.

Meanwhile the CGPIS will continue to work with Divisions to implement electronic messaging and support the collection and aggregation of diabetes and CVD data by Divisions.