5 Scenario-based evaluation of existing data collections

In order to provide a more detailed examination of the utility of existing data collections, two scenarios were constructed with the advice of practicing GPs. Each of the scenarios presents a 'case study' (Herreid 1997) of an individual or a group and a particular situation commonly encountered in general practice.

What is a scenario?

A scenario is a brief narrative, or story, here used to describe the hypothetical use of one or more systems to capture relevant information for population health and/or problem management monitoring. For example, practice management systems manage the business of the general practice by recording patient details, managing bookings and attendances, and managing financial transactions, whereas clinical management systems may record information about the patient's health issues— current and past problems, conditions and treatments, including medications and diagnostic tests.

Expectations of the scenarios

The scenarios are designed to provide a complementary assessment of the usefulness of the existing data collections and also to illustrate some of the connectivity between these collections. In doing so, they highlight the data that need to be collected and extracted for reporting purposes.

Assessing collections against the scenarios

Each of the collections was assessed as to the extent to which the patient–general practitioner interactions, diagnoses and management actions were able to be recognised and from which the outcome for the scenario could be deduced.

A collection is deemed as a satisfactory starting point for an electronic collection only if it is able to provide these pieces of information—namely to satisfy criteria 1 and 3–9—and that the data collected is patient-based.

So, for patient encounters, it would be expected that information could be obtained about demographics (criterion 1), why patients come (problem managed) (criterion 3), what other conditions they present with (comorbidities) (criterion 4), and in managing the patients' care over the short and long term, what outcomes were achieved (criterion 5) and how these were achieved (criteria 6–8), and finally how satisfied the patients are with their care and/or their health status (criterion 9).

Scenario 1: Paediatric asthma

The policy and practice context for this scenario

In the context of the National Chronic Diseases Strategy (NHPAC 2006a), the approach for the management of asthma encourages coordinated action to manage the impact of the disease. In accordance with the National Asthma Strategy 2006–2008 (DoHA 2006) and the National Service Improvement Framework (NSIF) for Asthma 2005 (NHPAC 2006b), a GP would be expected to appropriately manage an occurrence of asthma by:

- correctly diagnosing the condition
- making an assessment of its severity
- devising a proper management strategy, including appropriate medication, patient education, and a written action plan
- providing for ongoing monitoring, including the scheduling of appropriate follow-up
- referring the patient, where appropriate, to a specialist.

An integrated and ambulatory model of care is seen as the best approach for the cost-effective management of chronic diseases. The goal is to prevent and manage such conditions in the home and community environment to avoid costly hospitalisations. For the delivery of optimal services for patients with asthma, critical intervention points for the management of asthma, as highlighted in the NSIF, could be monitored if the relevant data were collected. This could provide a means to monitor the extent to which evidence-based medicine is applied in practice. The monitoring of such intervention points could be used to assess the extent to which the burden of asthma in the community is reduced through effective primary health care.

The problem the scenario tackles

The information to be collected is about the encounter a GP has with a child exhibiting signs of asthma, as a first recognised occurrence. As an individualised written asthma action plan is an essential component of optimal self-management education—leading to clinically significant reductions in hospitalisations, emergency department visits and unscheduled visits to the doctor for asthma (National Asthma Council Australia 2000)—it is expected that this action would be able to be recognised using data collected from practice records.

The scenario

In this scenario, the patient presents to her local GP with a problem of not being able to get rid of her cough. The patient is a young child whose mother smokes. The GP belongs to a medium-sized metropolitan medical centre with sophisticated patient management and clinical management systems. The medical practice has an integrated suite of software to manage the business of the practice and encounters with its patients.

5 Scenario-based evaluation of existing data collections

About the patient

Myra Anderson presents to her local medical centre to see her doctor about her daughter Vanessa's cough. Myra, a 32-year-old woman, is concerned that her daughter has got another chest infection and ongoing cough.

Vanessa, who has just had her seventh birthday, wants to go on her first school excursion. Myra is keen for Vanessa to go, but wants to make sure Vanessa is well enough to go for the long day of the excursion.

Register patient

Myra and Vanessa present at 9:30am to the front counter of the medical centre for Vanessa's appointment with Dr Ramone. Although Myra is registered as a patient of the centre, it is Vanessa's first visit to this medical centre. Myra is asked by the reception staff to fill out the patient registration form.

Understand problem (assess)

Dr Ramone asks what the problem is and Myra states Vanessa seems to have another cough which she cannot seem to shake. She coughs at night and she seems to be really tired of late. Myra has tried giving Vanessa some over-the-counter medication, which sometimes helps for a bit, but Vanessa's coughing is continuing.

Dr Ramone asks Myra to describe Vanessa's cough. Myra states that the cough sounds quite moist and that she thinks that it needs some antibiotics to clear it up.

Dr Ramone asks Vanessa how long she has been feeling this way and Myra states that it is about a month. Myra states "It seems as if it never really went away after the last cold she had".

Dr Ramone asks Vanessa to describe more about the cough, its pattern and what happens if she runs around or plays sport. Vanessa states she coughs at night time, sometimes a lot, and also when she runs around at school. Vanessa adds that sometimes she has to stop to cough.

Relevant past and family history

Dr Ramone gathers past history by asking Myra if Vanessa has had any previous illnesses or hospitalisations. Myra responds Vanessa has always been a bit chesty. Vanessa has been hospitalised once, when she was one, for gastroenteritis. Apart from that, Myra declares Vanessa has been well.

Data that would be collected by GP system	Data needing to be extracted for a national data collection
Patient details:	
Family Name	
Given Name	
Date of birth (D.O.B)	D.O.B
Country of birth	
Sex	Sex
Individual Health Identifier (IHI)	IHI
Indigenous status	Indigenous status
Address	Postcode
Contact details	
Carer details	
Medicare number	
Private health insurance fund code	
Date of encounter	Date of encounter
Time	
Symptoms	Symptoms
Presenting problem	Presenting problem
Date of onset	Date of onset

Data that would be collected by GP system	Data needing to be extracted for a national data collection

Dr Ramone asks Myra whether anyone in the family has asthma, hayfever or allergies. Myra says her brother had asthma when he was younger, and that she used to get bronchitis a lot. Myra adds that Vanessa's dad gets bad hayfever and she thinks he may have also had asthma as a child but she is unsure. Myra states her father also gets asthma.

Dr Ramone checks Vanessa's allergy and immunisation history is up to date.

Dr Ramone then to ask some more questions about Vanessa, including whether there are any recent changes at home, whether they have any pets, and if anyone at home is a smoker. Myra admits to smoking and Vanessa says this really makes her cough.

Exposure to ETS flag	Risk factor

Clinical examination

Dr Ramone takes Vanessa's temperature, looks at her throat, and looks in her ears. Dr Ramone asks Vanessa to cough and to take a couple of large breaths while he listens to her chest.

Dr Ramone observes Vanessa has expiratory wheeze in most zones and tends to cough after expiration. Her chest is slightly overexpanded, but she is not using additional muscle to help her breathe. She has no fever and her throat and ears are normal.

Identify condition

Dr Ramone advises Myra that Vanessa's cough sounds more like a mild asthma than infection. Antibiotics are not likely to help in this situation.

Diagnosis	Diagnosis

Dr Ramone explains that this is a common condition in children and in Vanessa's case is most likely due to her lungs remaining a bit inflamed following her recent cold. Dr Ramone also explains to Myra that her family history makes this more likely. He reassures Myra and Vanessa that this is a treatable condition.

Severity	Severity

Myra states she knows a little about asthma from her brother and other parents at the school who talk about their kids having asthma. Myra states she does not want Vanessa taking steroids and enquires about other medication.

Dr Ramone downloads a brochure G*ood Asthma Management for Everyone. A Guide for People with Asthma* and talks Myra through the key points about asthma, its symptoms and their causes and its triggers.

Dr Ramone also uses the opportunity to advise Myra that Vanessa being exposed to passive cigarette smoke in the house can also

5 Scenario-based evaluation of existing data collections

be a triggering factor and that perhaps they need to talk more about her smoking. He asks Myra to try to give up her smoking or at least try to smoke outside of the home to help Vanessa better cope with her condition. He invites her to return and discuss this at another time.

Dr Ramone advises Myra that there are different options to manage Vanessa's condition and they could try tablets or a non-steroid preventative puffer. Myra and Vanessa agree the puffer would be better for them.

Dr Ramone checks to see whether June, the practice nurse, can see Myra and Vanessa before they go home. Dr Ramone prescribes Tilade to be used morning and night via MDI and spacer and Ventolin to be used if required when she is coughing a lot or wheezing.

Data that would be collected by GP system	Data needing to be extracted for a national data collection
Medication Order Identifier	Medication Order Identifier

He arranges to see Myra and Vanessa in 2–3 weeks to ensure the cough has resolved and to discuss ongoing management.

Review date	Review date

June explains how to use the use the MDI with the spacer and asks Myra to help Vanessa to take a dose of her prescription, as directed by Dr Ramone, when they get home.

June reiterates how passive smoke may be triggering some of Vanessa's attacks and provides some guidance for Myra to help her give up.

Review appointment

Dr Ramone asks Myra how Vanessa is going. Myra replies the cough seems to have settled and she is sleeping much better. She can also run around again without coughing. Myra has also not given Vanessa any ventolin for more than a week and she seems much better. Dr Ramone listens to Vanessa's chest and is satisfied that it is now clear.

Date of encounter	Date of encounter
Time	
Presenting problem	
Symptoms	
Diagnosis	Diagnosis
Severity	Severity

Dr Ramone reviews Myra's understanding of asthma and uses this opportunity to write out a set of instructions for Myra using a coloured Home Management of Asthma—Action Plan which he accesses from his letter templates. The Action Plan sets out written instructions about how to recognise asthma and what Myra is to do when Vanessa has symptoms. They decide to wean Vanessa off the Tilade over the next week and see how she goes.

Date action plan	Date of action plan

He suggests Myra contact the Asthma Foundation for further information and recommends <www.nationalasthma.org.au> for web-based resources.

Data that would be collected by GP system	Data needing to be extracted for a national data collection

Dr Ramone again encourages Myra to quit smoking because it will bring benefits to both her and Vanessa and that she should try the Quit program.

He asks Myra to book a follow-up appointment in 3–6 months.

Review date	Review date

Follow-up visit

Vanessa and Myra return after 4 months—Myra has not quit smoking, but she does not smoke in the house or the car and she thinks this has helped her cut her smoking to no more than 10 per day. Myra is still trying to quit.

Date of encounter Time Presenting problem Symptoms	Date of encounter

Vanessa has had the occasional puff of ventolin when she started swimming lessons as she started coughing with this exercise. Recently, Vanessa had another cold and started Tilade as per her asthma management plan, which seemed to prevent her developing asthma or a prolonged cough on that occasion.

Diagnosis Severity	Diagnosis Severity

Data collected during the encounter

For this scenario, information about patient demographics (criterion 1), problems managed (criterion 3), the clinical outcome achieved (criterion 5), adherence to guidelines (criterion 6) and evidence of best-practice (criterion 7) can be collected. The patient did not present with comorbid conditions (criterion 4) nor were referrals (criterion 8) for specialist services or diagnostic tests ordered. No information is available about how the patient felt about her health or the quality of care that she was provided (criterion 9).

For this scenario, data captured during this encounter could be used to report information for the following indicators (ACAM 2007):

- doctor-diagnosed asthma
- symptoms of asthma in the last 12 months
- symptoms of a wheeze in the last 12 months
- smoking in the household where children with asthma reside
- written asthma action plan.

Commentary

Monitoring for the adoption of evidence-based practice would require data from all three encounters to be collected to ensure clinical interventions have been applied at critical points (NHPAC 2006b). The data extracted for each encounter, from the initial encounter to the review of the patient's adherence to the asthma action plan, would need to be linked to see if the action plan is having the desired effect for achieving a positive clinical outcome for the patient. Thus for the 'parent' record, where the condition was first diagnosed, the subsequent 'child' records would also need to be extracted.

5 Scenario-based evaluation of existing data collections

The majority of the data collections described in this report would not be able to provide all of the required pieces of information; indeed, most would provide very little. CONDUIT, GPRN and BEACH do collect much that is relevant (demographics, symptoms, diagnoses, treatments provided) but not all. The connection between the first and subsequent encounter is the most problematic factor, as the linkage over time to follow treatment patterns is not yet possible in most cases. However, the method in use by CONDUIT has potential in this regard.

Scenario 2: Influenza vaccination

The policy and practice context for this scenario

It is estimated that influenza—a potentially fatal disease—causes more than one million consultations, 20,000–40,000 hospitalisations, 1,500 deaths and 1.5 million days off work each year in Australia (Influenza Specialist Group 2006).

To reduce this impact, an improvement in vaccination rates for target populations at high risk would have significant benefits to Australia because the need for health services, and therefore costs, would be reduced. Influenza and its associated complications, if not treated early, are one of the major reasons people in these high-risk groups are admitted to hospital.

The problem the scenario tackles

The information that needs to be collected relates to the encounter a GP has with an existing patient who was recalled for her influenza immunisation, but did not come to the practice influenza clinic.

A significant cause of illness, influenza greatly affects those people who suffer from chronic conditions such as heart disease, diabetes and lung disease. This group not only includes people over the age of 65, but many people below that age who, because of their health status, are at risk of severe illness, hospitalisation or death due to the effects of influenza.

As an annual influenza vaccination is an essential preventive treatment for people at risk, it is expected that the fact that the patient has not had her annual vaccination would be an item that could be recognised, that whether appropriate action is taken could be monitored and the associated data could be collected from GP system(s).

The scenario

In this scenario, the patient with a complex comorbid condition presents to her local GP with a problem of not being able to get sufficient sleep. The patient is recognised as belonging to an at-risk group aged less than 65—an annual influenza vaccination is recommended. The GP belongs to a medium-sized medical centre that has a clinical management system, but patient bookings are taken manually.

Data that would be collected by GP system	Data needing to be extracted for a national data collection

About the patient

Helen Lazaridis presents to her local medical centre to see her doctor about renewing her medication. Helen, a 52-year-old woman, has three teenage children, two of whom still attend school, while the oldest Anna helps her out in the shop. Helen's husband Nick was killed in a fishing accident 2 years ago.

Register patient

Helen presents at 4:30pm to the front counter of the medical centre for her appointment with Dr Rachael Cohen.

Dr Cohen calls Helen and they go to the consulting room.

Data that would be collected by GP system	Data needing to be extracted for a national data collection
Patient details:	
Name	IHI
Date of birth (D.O.B)	D.O.B
Country of birth	
Sex	Sex
Indigenous status	Indigenous status
Address	Postcode
Contact details	
Carer details	
Medicare number	
Private health insurance fund code	
Date	Date of encounter
Time	

Understand problem (assess)

Dr Cohen asks what seems to be the problem. Helen states she just needs a renewal of her medication.

Reason for encounter	Reason for encounter

Dr Cohen explores how Helen is going with her health care. Dr Cohen probes further about the general management of her health. Helen is not exercising sufficiently and is not sleeping very well. Helen also complains about her arthritis and that she has been taking paracetamol but recently moved to taking nurofen and glucosamine. Dr Cohen decides to review Helen's current medications and measure her weight, waist circumference and check her blood pressure.

Symptoms	Symptoms
Presenting problems	Presenting problems

Relevant past and family history

Helen's blood pressure is 120/78. Helen's history shows she has Type 2 diabetes, hypertension and hyperlipidaemia. Helen is also overweight, with a BMI of 29. Helen is a non-smoker and non-drinker. Dr Cohen notes her family history of diabetes and heart disease in her mother and that her father died of lung cancer. He also notes she was recalled for her influenza immunisation, but did not come to the practice influenza clinic. Helen's last diabetes screening was completed 4 months earlier and they had agreed a 6 month review of her care plan which would be due for review in 2 months time.

Risk level	Risk level

Clinical examination and identify condition

Dr Cohen advises Helen that he would like to review her medication to make sure she is not going to run into any problems. He organises a medication review for the pharmacist to visit her at home and go through all Helen's medication with her, including the tablets she is getting from the health food shop.

5 Scenario-based evaluation of existing data collections

Dr Cohen uses the online referral network to see if there is an accredited pharmacist in her area. Dr Cohen completes the online e-referral form and sends the referral via the secure network (Argus) to Ryan's Pharmacy.

Dr Cohen advises Helen once she and the pharmacist have reviewed her medication and she gets Helen's Medication Review back, the practice will give her a ring and ask Helen to book an appointment to follow-up the results. Dr Cohen suggests it may also be a good time to review her care plan.

Before Helen leaves, Dr Cohen arranges for her to see the practice nurse and have her influenza vaccination.

Follow-up visit

Helen returns the following week. Dr Cohen and the pharmacist have reviewed the results of Helen's Medication Review (NPS Form) and Dr Cohen explains the plan of action in relation to Helen's medication regime with her.

Data that would be collected by GP system	Data needing to be extracted for a national data collection
Planned review date	Planned review date
Medication Order Identifier	Medication Order Identifier
Date	Date of encounter
Time	
Presenting problems	Presenting problem
Symptoms	
Diagnosis	
Severity	Risk level
Date medication management plan	Date medication management plan

Data collected during the encounter

For this scenario, information about patient demographics (criterion 1), problem managed (criterion 3), the presence of comorbid conditions (criterion 4), the clinical outcome achieved (criterion 5) and the adherence to guidelines (criterion 6) and evidence of best-practice (criterion 7), and referrals (criterion 8) for specialist services can be collected. No information is available about how the patient felt about her health or the quality of care that she was provided (criterion 9).

Data captured may be used to report against the following indicators:

- doctor-diagnosed influenza risk group
- vaccination (medication order identifier) dispensed.

Commentary

For this scenario, although other health conditions of the patient may need to be monitored, it is the data about the detection of a patient at risk and ensuring that the clinical investigation does not reveal the onset of symptoms of influenza—and hence that the desired prevention is put in place (vaccination is given)—that needs to be captured.

To monitor for the adoption of evidence-based practice, data from the first encounter may be all that is required to ensure clinical interventions have been applied at critical points.

Utility of existing data collections

As for Scenario 1, most of the existing data collections would provide very little of the required information. Again, the most promising candidates for further development appear to be CONDUIT, BEACH and GPRN, with the issue of connecting information from more than one encounter being a substantial hurdle to be overcome.