Australian general practice and pandemic influenza: models of clinical practice in an established pandemic

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ABSTRACT

- To minimise the health impact of pandemic influenza, general practice will need to provide influenza-related and non-influenza primary health care, as well as contribute to the public health goal of disease control.
- Through interviews and workshops with general practitioners, nurses and policy leaders between March and July 2006, and literature analysis, we identified potential models of general practice in an established pandemic, and assessed their strengths and weaknesses.
- Three possible clinical models were identified: a default model of no change to service delivery; a streamed services model, where general practices reorganise themselves to take on either influenza-specific care or other clinical services; and a staff-determined mixed model, where staff move between different types of services.
- No single model or set of strategies meets the needs of all general practices to deliver and sustain the essential functions of primary health care during an established pandemic. Governments, general practice and the relevant peak professional bodies should decide before a pandemic on the suite of measures needed to support the models most suitable in their regions.
- Effective participation by general practice in a pandemic requires supplementary infrastructure support, changes to financial and staffing patterns, a review of legislation on medicolegal implications during an emergency, and intensive collaboration between general practices.

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Pandemic influenza will challenge all facets of Australia's health system. International experience shows general practice planning for pandemics lags behind public health planning. In the severe acute respiratory syndrome (SARS) epidemic, general practitioners in Canada[1] and Hong Kong[2] reported lack of familiarity with public health plans, and lack of communication between general practice and public health. In Australia, GPs in the Australian Capital Territory reported that they were aware of public health guidelines for SARS, but that recommendations for telephone triage and compiling infection control kits in practices were often not followed.[3]

State and territory public health authorities have produced plans addressing the use of hospitals, and the role of public health services in a pandemic.[4-10] Planning for and by Australian general practice is less advanced. In the New South Wales pandemic plan, for example, general practice is mentioned in one sentence in a 45-page document,[5] although, in an appendix, householders are advised to consult GPs before a pandemic, and are informed that GPs may direct them to fever clinics in a pandemic. In other state plans, GPs are seen to have a role in surveillance[6-9] and in treating patients with influenza in their practices[6-8,10] or in community assessment clinics.[6] In most cases, the coverage of how general practice will fill these roles is cursory. A forthcoming annex to the *Australian health management plan for pandemic influenza*[4] will provide more details on infection control, surveillance and triage of pandemic influenza in general practice.

A recent supplement in the Journal addressed various aspects of pandemic response, including the generic needs for influenza-related care in general practice, such as preparedness (seasonal influenza and pneumococcal vaccination for susceptible patients, and surveillance) and response (diagnosis and infection control).[11] A study that drew on interviews with 60 Tasmanian GPs found widespread willingness among GPs to provide clinical services during a pandemic.[12] However, there is little detailed discussion about how general practice will continue its primary care function, as well as responding to a pandemic.

This article deals with general practice in Stage 6 of a pandemic, when influenza has become widespread.[4] We assess three general practice models for delivery of health care across four domains crucial to an effective, integrated general practice response to a pandemic: patient health care needs, physical environment, organisational milieu of the general practice, and contribution to public health to control influenza. Study methods are summarised in Box 1.

The study was approved by the Australian National University Human Research Ethics Committee and the Royal Australian College of General Practitioners (RACGP) National Research and Evaluation Ethics Committee.

Clinical health care models

We assumed that the broad goals of general practice in a pandemic are:

- to provide essential primary health care;
- to contribute to provision of ambulatory care for influenza patients and their contacts; and
- to support the public health goals of disease control.

We identified three potential general practice models for an established pandemic:

- *Default model:* General practices continue "business as usual", with their usual complement of staff, attempting to provide the usual mix of clinical services.
- *Streamed services model:* General practices self-assess their capacities to provide influenza-specific care or other care. In this model, general practices might provide influenza-only care, or non-influenza primary health care. Practices providing non-influenza care might choose particular areas such as antenatal care or minor trauma.
- *Staff-determined mixed model:* Decisions about a GP's service mix are made by individual GPs themselves, rather than the general practice. GPs might move between different types of service (eg, community assessment clinics, or public health activities like contact tracing or following up quarantined patients). This model allows GPs to retain freedom of choice over activity, without the structures of general practice changing.

1 Policy development and analysis method

We used a realist approach to policy development and assessment. The process involved five steps.

Review of refereed and grey literature on emergency preparedness[13]

A PubMed search of the English language literature for the term "general practice" in combination with any one of the terms "influenza", "epidemic", "pandemic", "influenza preparedness", and "preparedness" revealed 22 eligible papers among 636 search results.

Synthesis of the review results

The review results were used to develop a series of mechanisms that would underpin an effective response by general practice.[14] These were categorised into four domains, using the Haddon matrix:[15] patient needs for influenza and other primary health care, the physical environment of the clinic, general practice's organisational milieu, and contributions to the public health goal of disease control.

Interviews

We conducted sequential interviews with 9 general practitioners and 10 practice nurses in two participating Divisions that had experience with disaster preparedness and response, and 8 leaders within medical and general practice professional organisations (Australian Medical Association, Royal Australian College of General Practitioners, Australian General Practice Network). We conducted group interviews with 14 state and territory public health leaders and two groups of GPs and nurses working in aged care ($n = 16$). We held two workshops, attended by representatives of state and territory health services, Commonwealth policymakers, non-government organisations, and general practice organisations.

These interviews and workshops, which occurred between March and July 2006, explored the consequences and effects of different mechanisms of practice for GPs in a pandemic.

Development of models

Drawing on the results of earlier stages of the research, we developed three models for general practice during an established pandemic.

Assessment of models

We assessed the models in four 2–3-hour simulation exercises in Melbourne and Canberra. These were attended by 25 GPs, 11 practice nurses and 10 administrative staff.

The results were collated by two researchers (C B P and M S P) with backgrounds in social science, general practice and public health policy, using the dimensions of quality identified in the quality framework for general practice:[16] effectiveness, acceptability, accessibility, appropriateness, efficiency, and safety. ◆

Assessment of the models in the four domains

Box 2 summarises the strengths and weaknesses of each model.

Patient health care needs

The default model assumes that patients would attend for both non-influenza health care and for influenza. Most state plans provide for community assessment and information clinics (or "fever clinics") to protect general practice from a surge in influenza cases. However, in Singapore during the SARS epidemic, patients preferred to attend their GPs, rather than the government clinics set up for SARS. Drawing on this experience, the government of Singapore recently announced that, as part of its pandemic response, it intended to provide 1000 general practice-run clinics.[17]

The default model is likely to be acceptable to both patients and staff, but may be inefficient in other aspects of pandemic response, such as contributing to public health goals. These concerns also apply to the staff-determined mixed model, which is likely to be the most acceptable to GPs, but will require suitable role definitions for GPs in the public health plans.

The streamed services model fits the public health model of specialised community centres for assessment and treatment of influenza. This model would support hospital early-discharge policies and, to some extent, relieve accident and emergency services from providing urgent non-influenza care. Services that choose this model may need extra training in emergency management (eg, minor injuries), and sufficient resources.[18] It may be appropriate for doctors with specialised skills, such as orthopaedic surgeons, to staff an acute care general practice.

Physical environment of general practice

In most clinics, this domain presents significant challenges. The requirements for good infection control are set out in the *Australian health management plan for pandemic influenza* and related state plans,[4-9] and by the RACGP.[19] The default model may pose a significant risk for transmission of the virus if general practices do not have facilities to isolate patients with suspected influenza. A national set of guidelines should be developed to assist Divisions of General Practice in supporting practices to self-assess their capacity to operate safely in a public health sense. If a practice is deemed to be an active transmission risk, it may consider amalgamating with another practice with suitable isolation facilities. Patient records should be readable by a variety of computer software to facilitate transfers of patients.

The physical location of services might change. As smaller practices are likely to experience the largest proportionate impact from staff absenteeism, it may be prudent for them to amalgamate temporarily. Drive-through clinics, possibly conducted through commandeered fast food drive-through booths, may have a place for consultations in which direct physical contact is not needed. A mobile visiting service for people confined at home is another option. Practices that decide to continue operating will need sufficient communication equipment to manage a surge in demand, a possible shift to telephone outreach models of care, and sufficient information technology to ensure contact with public health authorities.

Practices that choose a streamed services model will need to ensure that they have suitable infrastructure and physical space. A service that chooses to increase its coverage of minor trauma would be helped by having access to x-ray facilities. An influenza-specific clinic will need to ensure it has room to triage and isolate patients, and to ensure ready transfer to acute facilities if needed.

Organisational milieu of the general practice

The default model assumes continued payment through existing Medicare sources. This is likely to be limited in flexibility; for example, Medicare cannot reimburse telephone calls, or sufficiently reimburse home visits. The streamed services model may also function through Medicare funding. However, without an expansion in Medicare funding models, practices will struggle to contribute to public health activities such as contact tracing or home monitoring, and will only be able to provide face-to-face clinical services.

In each model, general practice staff may be supplemented by allied health workers, retired GPs, private specialists, and students. Working rosters will require active planning within the general

2 Quality analysis of different models of general practice in an established pandemic

Default model	Staff-detemined mixed model	Streamed services model
Effectiveness		
Effective in providing one-on-one clinical care. May not be effective from a population health perspective	Effective in providing clinical care. Effectiveness for population health depends on scope of clinical and public health services provided by GPs	Likely to be most effective in meeting clinical needs and population health needs
Acceptability		
Acceptable to patients and staff, as little change to current system	Acceptable to staff, as autonomy preserved	Both staff and patients will need support to accept altered models of practice
Accessibility		
High, provided staff attrition not too marked. Service not accessible to many who are in home isolation or quarantine	Staff attrition, particularly in small general practices, likely to be a problem for covering wide scope of clinical services	Enables changes to be made to adjust for staff attrition
Appropriateness		
Appropriate for clinical care, but not necessarily population health	Appropriate for clinical care and population health if wide range of primary health care services are covered for a given community	Appropriate for clinical care and population health if wide range of primary health care services are covered for a given community
Efficiency		
Efficient for the general practice, but poor efficiency for responding to surge in clinical needs of the community and for reducing workload in hospital emergency departments	May be efficiency trade-off, with general practice becoming less efficient	Requires significant reorganisation, structural changes and infrastructure support
Safety		
High risks of influenza transmission to other patients and staff	Some general practices continue to pose influenza transmission risk	Safer option with respect to influenza transmission risk ◆

practice, including after-hours clinic rosters and staggered working hours. The rostering of staff is likely to be highly complex and require external support and monitoring, possibly from Divisions. The staff-determined mixed model will involve the most complex rostering, as individual staff members will determine how to deploy their time. Nevertheless, this model may be the most appropriate for practices with few staff.

Developing a streamed services model of general practice may be less challenging for corporate practices than for other general practices, if there are regional links between general practices belonging to the same corporation.

Public health needs for containing pandemic influenza

The capacity of the default model to support public health activities is limited. For the staff-determined mixed model, the contribution of general practice to public health will be maximised if public health plans define roles for GPs. Activities such as surveillance, contact tracing and follow-up of patients in home isolation or quarantine may be sought by GPs, as they offer more flexibility than clinical work for parents with young children. Unless attention is paid to back-up staffing in general practice, this model may lead to an efficiency trade-off as general practice capacity is depleted in favour of public health capacity.

Implications for practice

Our study highlighted several models of clinical care which could be adopted by general practice in a pandemic. As our research focused on urban Australia, we cannot comment on the suitability of these models for rural Australia, although we believe the staff-determined mixed model is likely to reflect existing practice in rural Australia. In urban Australia, if no further preparation is made, the default model will be used. This model is acceptable to patients and has inherent flexibility, but has limited capacity to contribute to public health goals. Furthermore, infection transmission could be a problem in general practices with insufficient triage and isolation facilities.

If public health or the hospital sector defines specific roles for GPs, a staff-determined mixed model may lead to effective use of GPs in a broad public health response, but this may be at the expense of primary health care. The most effective and safest service in an established pandemic is likely to be the streamed services model, but this has the most need for infrastructure support.

A slowly evolving pandemic may require no more of general practice than the default model. However, the principle of preparing for the worst case scenario demands that we consider measures to support all of these models. All models will require consideration of back-up staff, funding that will support enhanced clinical care (eg, telephone consultations and home care) and possibly public health activities, and ways of coordinating and monitoring GP staff levels and activities. Resources will need to be committed to coordinate general practices, to maintain workforce numbers, and (for the streamed services model) to assist in the reallocation of work at different points in the pandemic. Effective general practice participation will also require significant and innovative infrastructure support, a review of medicolegal implications for care provision during an emergency, and intensive engagement with general practices to

identify the most appropriate model for them before a pandemic arrives.

Non-hospital specialists are a key community resource.[18] In 2003, there were 8066 specialists working mainly in private practice in Australia;[20] the role of these professionals in a pandemic has not been clarified. Physiotherapists and other allied health workers in private practice could also participate in a comprehensive primary care response plan.

The organisation of primary health care in Australia makes integrated preparation and response for disasters difficult. General practices in Australia are small businesses, with a voluntary coordination structure, the Divisions. Clinical governance functions are vested in individual practices, rather than at the Divisional level, in contrast to New Zealand and the United Kingdom.[21] About 8% of Australian GPs work in corporate structures, but these vary widely, and the extent to which they are able to adopt an external clinical governance function is uncertain.[21]

We found that GPs were often unaware of the public health plans for their jurisdictions. The plans of only two jurisdictions provide for GPs to be represented at the state incident command level,[6,10] so difficulties with two-way communications between incident command and general practices are predictable. The absence of external clinical governance structures or a national primary health care strategy makes the need for early planning and sustained collaboration between general practice and state and federal governments more acute.

The models of response sketched in this article do not have an evidence-informed base, as we have not had recent experience with pandemic influenza. The models can be viewed as action research to strengthen clinical services during a pandemic. A monitoring and evaluation plan to track the implementation of the health care innovations and assess their effectiveness is essential.

General practice in Australia is flexible and responsive, and should have a central role in pandemic response. Preparation for that response must occur both outside general practice, at the state and Commonwealth levels, and within general practice.

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