Epicentre of influenza

The primary care experience in Melbourne, Victoria

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Background
General practice in Australia is expected to play a major role in responding to an influenza pandemic. This study investigated the experience of frontline general practice during the H1N1 influenza pandemic of 2009.

Methods
Semi-structured interviews were conducted with general practices in the northern suburbs of Melbourne (Victoria) in August and September 2009. Purposive sampling chose practices with high volumes of patient presentations early in the pandemic. Interviews were content transcribed at the time of interview. Major themes were identified through discussion with general practice division personnel and academic general practitioners in the field.

Results
There was significant variability in the pandemic experiences of the 10 participating practices.

Discussion
Addressing issues identified in this study could increase the capacity of general practice to support the community and public health measures during a pandemic. Future planning for the role of general practice in pandemics should include pre-pandemic assessment of practice capacity, review of public health communication strategies and workforce protection, and improved integration of general practice and public health responses.

Keywords: influenza; communicable/infectious diseases; public health; health services; delivery of health care; general practice manpower

Increased primary health care capacity is required when influenza-like illness (ILI) due to a novel virus of unknown virulence occurs in epidemic numbers in a community. In this situation, primary care potentially provides accessible health services, continuity of care, an available multi-skilled workforce, and a triage mechanism for diversion of patients to the tertiary sector.

Australian general practices are expected to play a major role in the response to an outbreak of pandemic influenza. This was the case when the northern suburbs of Melbourne (Victoria) were the first in Australia to experience community based transmission of the highly infectious H1N1 influenza virus in May 2009.

By mid June, 66% of Australia’s confirmed cases were from Victoria.

Melbourne’s northern suburbs have a diverse group of general practitioners in solo, group, and corporate practices. They often have high patient-to-GP ratios and service an ethnically diverse population with some areas of social disadvantage. General practices are regionally supported by general practice divisions (GPDs), which are federally funded primary care support organisations that provide assistance to general practice across a wide range of activities. The pandemic preparedness of the primary health care system in these suburbs was sorely tested as patients turned to general practices for information and treatment of ILI in May and June 2009. In addition, due to local hospital emergency department (ED) overload, Australia’s first state funded influenza clinics were established and were mostly co-located with hospitals in late May 2009. In July, recognising the intense pressure placed on practices in their catchments, two local GPDs instigated a quality assurance process to investigate the pandemic experience of general practices, to inform improvements in pandemic plans.

The aim of this study is to describe the early experience (4 weeks from first clinic presentation) of these frontline general practices in managing the outbreak of H1N1 influenza, when the virus was of unknown virulence and clinical expertise was rapidly evolving.

Methods
Semi-structured interviews were chosen for this study in order to collect in-depth information on the general practices’ experiences during this novel clinical and public health crisis. Purposive sampling targeted general practices that were subject to high volumes of ILI presentations early in the pandemic. These were identified through the records of the local community health centre influenza clinic and the two GPDs. Ten such practices were identified.

The principal investigator, in consultation with GPD personnel, developed a semi-structured interview schedule. Discussion topics included practice pandemic preparations and early phase responses including:
- patient presentations and workload
- operational re-organisation
- barriers to provision of clinical care
- workforce challenges
- resource issues (eg. personal protective equipment [PPE], antivirals)
- referral relationships, and
- public health communication.

The interview schedule was appraised by a convenience sample of GPs before interviews. Practice managers provided informed consent to participation in a confidential interview with the principal investigator. Interviews were conducted in August and September 2009.

Interviews were content transcribed by the principal investigator at the time of interview.
Data were coded and analysed according to the discussion topics in the semi-structured interview schedule. Major themes were identified through an iterative process of discussion and refinement with the GPD staff and academic GPs in the field. Data were then described narratively according to these themes.

**Results**

Ten practice managers completed interviews with the principal investigator, which ranged from 30–60 minutes. Six managers were administrative personnel, three were registered nurses and one was a GP. Practice managers consulted informally with practice GPs before interviews. Sampled practices ranged in size from 4–14 GPs, representing a maximum clinical capacity 6.5 full time equivalent GPs. Eight practices billed using a combination of private fee-for-service and bulk billing through Medicare, and two practices wholly bulk billed.

Major themes identified from the interviews are discussed below.

**Demand management strategies**

General practices utilised resourceful and pragmatic demand management strategies driven by individual practice characteristics. Examples are given in Case study 1–5.

Additional daily presentations to practices varied from 20–200 presentations per day. Two practices chose immediate, total and continuous ‘flu bypass’, using telephone triage and external signage on the basis of symptoms and risk exposure, with diversion to influenza clinics and hospital EDs (Case study 1, 2). Two practices with adequate stocks of PPE and capacity to physically isolate patients expanded services, although often at the risk of practice overload (Case study 3). Two practices had unused capacity due to a failure in resupply of PPE or workforce limitations (Case study 4). One practice undertook advanced restructuring of practice systems (Case study 5).

**Preparations**

Three practices had a ‘flu champion’ who significantly promoted practice resilience and capacity. They had stocks of PPE, scrupulous hygiene protocols and disaster plans enabling rapid expansion of services (Case study 3, 5). These staff had prepared using resources from GPDs, The Royal Australian College of General Practitioners, government websites and accreditation processes. They had often attended GPD educational activities on severe acute respiratory syndrome and avian flu. Seven practices had inadequate stockpiles of PPE, needing resupply within the first 2 weeks. Six practices ran critically low during the early pandemic with two practices being unable to access masks from any source within their first 2 weeks of the pandemic: ‘we were shocked at public health suggestions to try hardware chain-stores’, ‘the division scrambled to try to get us PPE’.

**Organisational characteristics**

All practices reported that physical and organisational characteristics were a dominant determinant of service capacity. Access to a rear entrance or car park, extra rooms for conversion to isolation or a designated ‘mini flu clinic’, a large waiting room for infection control and staff protection were all highly valued. One small clinic with a ‘wait in car’ policy reported their main obstacle to influenza care was ‘rain’, as many consultations occurred in their outdoor car park. A ‘flu champion’, a practice nurse and a large group practice providing roster flexibility were reported as promoting capacity. Information technology systems enabling double booking, ‘flagging’ of infectious risks and allocation of urgent appointments of ILI patients to specific practitioners also contributed to capacity. Patient demography had a major impact: ‘we couldn’t take an unknown virus into all our nursing homes’, ‘it spread like wildfire through our large refugee extended families’.

**Communication**

Influenza information to GPs came primarily from GPDs and the state health department. Six practices reported significant difficulties managing rapidly escalating information flow: ‘we had no time to sort through the welter of stuff’. Five practices reported that information provided was not necessarily synchronous with their on-the-ground experience, not orientated toward practical clinical guidelines and not tailored specifically to primary care. Three practice managers expressed frustration with attempts to access sophisticated clinical advice from health department help lines more orientated toward public health outcomes: ‘I was trying to source complex advice from a clerk using a checklist’. Practices reported difficulties managing patient expectations of investigation or treatment, in the face of contradictory media reports and public help line instructions: ‘they were furious when I wouldn’t prescribe antivirals’.

**Public health role**

Five practices reported conflicts of interest between their public health responsibilities and their capacity to provide clinical care, indicating that their patients took priority. Authorisation requirements for swabbing and prescription of antiviral agents were consistently reported as time consuming and compromising of clinical care when managing large numbers of patients: ‘40 minutes on the phone and they wouldn’t talk to anyone but a GP’. Three practices also reported delays in accessing swab results from an overwhelmed centralised laboratory.

The role of the GP as an advisor on quarantine, a guide for community organisations (infant welfare clinics/schools/sporting clubs/workplaces), and a provider of medical certificates could be overwhelming. One GP ‘donated’ significant unpaid expertise and time to influenza telephone triage, advice and education, home visits to quarantined families, telephone management/review of febrile illness and contract tracing in her community: ‘I predicted the spread up the tram track from the after school route of a confirmed case’ (Case study 5). Two practices reported that state government support dwindled precisely as clinical pressures increased, and the limits of public infrastructure were stretched by pandemic progression.

**Noninfluenza care**

Five practices reported struggling to maintain routine care; appointment wait times often doubled. Medical emergencies were at risk from delays in urgent treatment: ‘out of 50 masked people I luckily picked the man turning grey with a heart attack’. One clinic cancelled all routine recalls (Case study 3). General practitioners reported risks in triage to influenza clinics using the criteria of fever: ‘patients with pyelonephritis or otitis media could queue for hours next to patients with fulminant flu; patients were afraid to attend’. Patients accustomed to the GP familiar with their ground experience, not orientated toward practical clinical guidelines and not tailored specifically to primary care. Three practice managers expressed frustration with attempts to access sophisticated clinical advice from health department help lines more orientated toward public health outcomes: ‘I was trying to source complex advice from a clerk using a checklist’. Practices reported difficulties managing patient expectations of investigation or treatment, in the face of contradictory media reports and public help line instructions: ‘they were furious when I wouldn’t prescribe antivirals’.

**Demand management strategies**

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Staff impacts
Service delivery was affected when GPs and their families were quarantined or affected by community impacts, or staff had members of their family infected by influenza: ‘due to school closure my child sometimes attended work with me’. Eight practices reported very low rates of staff absenteeism due to influenza or fear of infection, with the exception of pregnant staff. Only two practices used antivirals as workforce protection. One clinic treated staff from antiviral stockpiles: ‘we stocked up through travel clinic after avian flu’. Another practice provided their ‘designated’ GP with prophylactic antiviral medication at clinic cost.

Influenza clinics
All practices used influenza clinics, once established, for after hours diversion. Two used them for in hours diversion, when ‘in extremis’ with workforce, lack of resources, or ‘other practices’ patients attending us’. Two practices instituted permanent ‘flu bypass’ for ethical reasons (Case study 1, 2). Only one practice contributed a GP part time to influenza clinic workforce, resulting in detailed knowledge of clinic functioning but increased risk of cross infection. No practice reported use of influenza clinic as a resource for primary care clinical guidance or assistance with coordinated management of high risk patients. One practice was ‘kept afloat by a single resupply of 100 masks from flu clinic’. Co-location of influenza clinics at distant major hospitals was problematic for one practice: ‘many patients just don’t own cars, and they were too sick or contagious for public transport’. Those practices adjacent to the very first ILI cases questioned the timeliness of establishment of influenza clinics: ‘we had an extra 40 patients daily well before establishment of the first influenza clinic, 30 minutes away by car’.

Discussion
The study clearly demonstrates the variability of both the pandemic experience of individual general practices and their choice of pandemic service delivery model. Factors influencing care provision included:
- staffing profiles
- patient demography (ethnicity/age/chronic illness)
- potential for reconfiguration of physical infrastructure
- supplies of PPE stocks
- proximity to EDs/influenza clinics, and
- the presence of staff knowledgeable in pandemic planning.

These factors influenced practice decisions regarding whether to maintain only noninfluenza care, to integrate influenza care into ‘business as usual’, or to adapt practice operations by deferring nonurgent medical care. These responses were consistent with potential models of clinical...
practice identified pre-pandemic by Phillips et al. These reactive decisions were often made with only patchy support from, or integration with, the broader health services. Some practices attempted to function as de-facto influenza clinics without the attendant back up of infectious diseases physicians, EDs, pathology, pharmacy or plentiful PPE stocks which characterised influenza clinics. This lack of integration increases risks of suboptimal primary health response, reduced workforce sustainability and inefficient referral to tertiary health services. Conversely pandemic planning that incorporates adjustment for these decisions could support those general practices whose structures best enable them to safely increase capacity.

Results also reflected the dynamic nature of the pandemic. Local intensity of demand for primary care services at the epicentre fluctuated significantly both chronologically and geographically. National plans such as the Australian Health Management Plan for Pandemic Influenza (AHMPPI) did not seem to afford regional public health authorities sufficient flexibility to tailor their response to local primary care providers. Consequently, public health assistance could be untimely, with delayed rollout of resources (PPE/antiviral agents/influenza clinics) that was inconsistent with the primary care objectives of the AHMPPI. Previous research suggests that GPs expected government provision of PPE and antiviral agents; otherwise they may well have created larger stockpiles.

General practices need a streamlined, clinically appropriate, regularly updated, electronic source of information focused on primary care that prioritises urgent changes of protocol. Effective two-way communication would enable rapid dissemination of information from the field (clinical and surveillance) and urgent resupply of equipment and medications to general practices. Public health authority requirements for antiviral prescription or swabbing requiring time consuming administrative processes would enable more efficient management of resources (PPE/antiviral agents/influenza clinics) that was inconsistent with the primary care objectives of the AHMPPI. Previous research suggests that GPs expected government provision of PPE and antiviral agents; otherwise they may well have created larger stockpiles.

General practices need a streamlined, clinically appropriate, regularly updated, electronic source of information focused on primary care that prioritises urgent changes of protocol. Effective two-way communication would enable rapid dissemination of information from the field (clinical and surveillance) and urgent resupply of equipment and medications to general practices. Public health authority requirements for antiviral prescription or swabbing requiring time consuming communication need overhauling. Consideration could be given to remuneration and indemnity for primary care staff who perform public health functions in an emergency.

This study identified practice organisational modifications including:
- creating mini influenza clinics with a designated GP
- assigning the ‘worried well’ to a clinic nurse
- training reception staff to provide health department literature
- appointing an information coordinator, and
- maintaining routine care by diverting ILI patients. Inter-practice cooperation could be considered to more efficiently manage risk and service delivery. Influenza clinics provided essential backup to these strategies, either for after hours care or total diversion of ILI patients. Influenza clinic deployment should effectively support primary care as well as tertiary care, without duplicating existing services or depleting the GP workforce.

Limitations of this study
This study has several limitations. Participants were purposively selected for high volumes of presentations early in the pandemic. The sample was limited to 10 urban group general practices and was at the epicentre of a novel infectious threat. There may have been an element of recall bias as the study was undertaken in August and September 2009, reflecting on experiences in the first 4 weeks of the pandemic. While the study sample is therefore not representative of the experience of all general practices, it provides novel and important data from general practice at the frontline of the first pandemic in over 40 years.

Conclusion
This study’s results provide valuable insights into the reality of general practice challenges at the epicentre of the H1N1 influenza 2009 pandemic. They assist in identifying key factors influencing the efficacy of frontline GPs in a pandemic, thus contributing to reviews of primary care pandemic planning. This planning should include:
- pre-pandemic assessment of each practice’s capacity
- review of public health pandemic communication strategies
- enquiry into workforce protection using PPE and antiviral agents, and
- improved integration of general practice and public health response. A rapid, flexible and responsive pandemic primary care support system could identify those general practices under extreme pressure, enabling prompt targeting of resources, utilisation of efficiencies of scale and mobilisation of personnel.

Addressing issues raised by GPs this study could increase general practice capacity to safely support the community and public health measures during a pandemic. Pandemic planning review must clearly articulate the responsibilities of primary care and both levels of government, informed by a collaborative approach that engages with general practices and their peak organisations. The frequent comment: ‘we were just lucky it wasn’t a killer’ should not apply to subsequent pandemics or a second wave of this pandemic.

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Conflict of interest: Jenny Bocquet is a former board member of NEVGP (2004) and NDGP (2008).

References

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