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What part does a national health call centre play in an integrated primary care service?

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When the then National government's Health Minister, Wyatt Creech, saw the England telephone triage and advice service, *NHS Direct*, he discerned a need for a similar service in New Zealand (NZ).

McKesson NZ Ltd won the tender and *Healthline* was introduced as a pilot programme in 2000, in association with St John. It was supported by succeeding Labour governments, and after an independent evaluation had judged the pilot a success, with the incorporation of *PlunketLine* for well child calls, it became a national programme in 2005.

It remains a free, 24×7 programme, in which nurses give advice supported by clinical software, and their activities are recorded and analysed by sophisticated information technology.

Aims

The initial aims in introducing the service were altruistic and economic. A free advice line would be accessible to all, especially to those for whom the cost posed a barrier to existing primary care services. Furthermore, it would manage demand so people who were uncertain what level of care they should seek would be directed to the right place, and at the right time; they would be taught to cope with their minor illnesses at home, freeing emergency departments and general practices for more serious work.[1]

Healthline has succeeded in reaching those in greatest need: use by lower socioeconomic groups is consistently higher than that by higher socioeconomic groups.[2] Use by Maori is consistently higher than use by other ethnic groups,[3] and use by the aged is similar to their patient-initiated consultation rate in general practice.[4]

The effect on other primary care services has been a volume reduction in telephone consultations—in emergency departments,[5] and after hours in rural practices.[6] Furthermore, callers who do need to see a doctor are more often triaged to a lower than to a higher level of acuity and urgency, thus reducing the demand on acute primary care (notably emergency departments and after hours general practice) services.

About a third of *Healthline* calls are at night, a third at weekends, and a third during business hours.[7] Figure 1 shows the number of calls by hour of the day and by day of the week; 9am to 9pm are the busy hours, and that trend is accentuated at weekends, thus suggesting *Healthline* is used as an alternative source of primary care advice when other services are perceived to be less easily available. That choice has been judged to be safe.[8]

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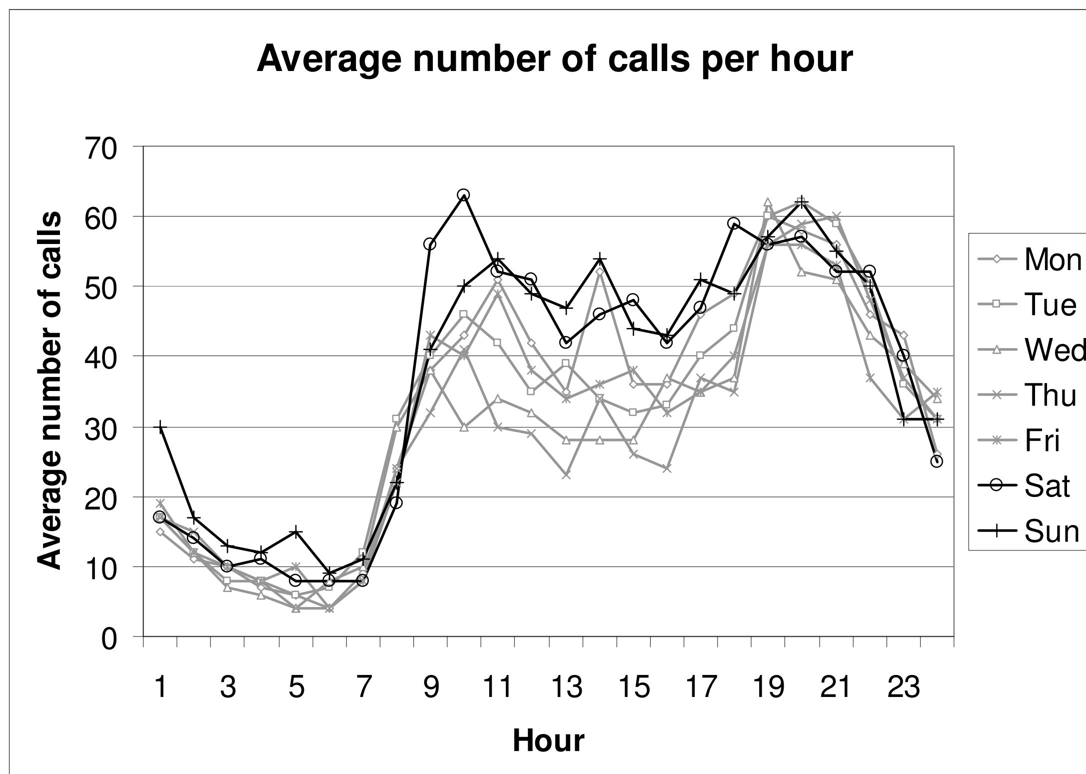
Figure 1. The average number of calls to *Healthline* per hour, by per day of the week, over three months.



Current call centre services

McKesson New Zealand has call centres in Wellington and Manukau City. They are linked to form a single virtual health call centre. This health call centre delivers several services:

- *Healthline* provides triage for symptomatic callers, but also health information to asymptomatic callers, and provider referral for those seeking, for instance, a general practitioner, the nearest branch of the Cancer Society, a Plunket nurse, or other providers. The database of providers is updated regularly by local St John officers.
- In 2006 McKesson NZ won the tender to provide the *Well Child Telephone Advice Service*, and that service is also accessed via the *Healthline* 0800 telephone number. As in all calls to the line, the emphasis is initially on triage, to ensure that the problem is not symptomatic of underlying illness, then on well child and parenting counselling or referral to existing services.
- McKesson NZ also operates *Mental Health Line* for a number of District Health Boards; mental health professionals field calls from providers and service users/tangata whaiora, and triage or give advice.[9]
- During the recent Meningococcal Vaccine Strategy, the Ministry contracted McKesson NZ to provide the *National MeNZB Support Line*, to answer

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enquiries about immunisation. Overall 44,674 calls were made over 78 weeks, 92% during business hours, and 86% from landline phones. 2233 follow-up calls were made, 692 callers were referred to a local provider, 5163 to a Public Health Unit, 443 to the Immunisation Advisory Centre, and 334 to *Healthline*.

What else can a national health call centre do?

Syndromic surveillance—There is an opportunity to use a triage line for a national public health system of symptom surveillance. In Britain, Canada, and the USA the term "syndromic surveillance" has been used for such activities.

Public health surveillance serves many functions, but one important task is outbreak detection—identifying a rise in frequency of disease above the background pattern. Currently outbreaks are recognised from accumulated reports of notifiable diseases, via voluntary reporting by sentinel practices and laboratories, or by alert clinicians bringing clusters of diseases to attention.

Now the threats of bioterrorism and pandemic influenza, and the advent of a national telephone triage service, with its ready availability of electronic data, have triggered new surveillance systems to detect outbreaks earlier (in the United States data from telephone triage calls were one to five weeks ahead of surveillance data collected by the Center for Disease Control using orthodox reporting methods).[10] These systems detect unusual geographic or temporal clustering of symptoms, and thus provide an early alert that may indicate an outbreak.

Harvard researchers have identified five stages in the detection of an outbreak: *data acquisition, syndrome grouping, modelling, detection,* and *alarm*.[11]

Data acquisition and syndrome grouping requires a sophisticated recording and reporting system linked to telephony (McKesson has that).

Historical data have to be analysed over several years to establish a model (a denominator) for the normal or expected pattern of complaints. McKesson now has that.

Detection of a real outbreak involves comparison of the observed values (for example, daily frequencies of patients presenting with a syndrome) against the expected pattern, to determine if activity is really abnormal, and to decide whether the abnormal pattern warrants raising an alarm. Such a system requires partnerships among public health agencies, clinicians, data providers, emergency response teams, the police, and the wider community.

In England and Wales, call data (site, symptom, age-group, call outcome) on 10 key symptoms are transferred every weekday from 23 *NHS Direct* call centres to the Health Protection Agency at West Midlands. Upper confidence levels (99.5% level) of symptomatic calls are developed, and significant statistical excesses ("exceedances") are automatically highlighted and assessed by a multidisciplinary team. The team considers the proportion of outcomes recommending emergency care, the age distribution, seasonal baselines, levels of similar activity at neighbouring *NHS Direct* sites, previous exceedances at that site and current known community levels of disease. A geocoding system can then be used to map the call addresses to check locality clustering.

If concerns persist, local health protection teams are alerted.

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GP consultation with other specialists—Bradstock and her colleagues have described *GP-Psych Support*, a national Australian mental health management advice service that links general practitioners with psychiatrists by phone, fax, or email within 24 hours. The service is federally funded, began in March 2004, and is operated by McKesson Asia-Pacific.

Over the first 6 months of operation of the phone/fax arm, there were 726 case discussions between GPs and psychiatrists. A third of the GPs were rural, and 17% used the service twice or more. Most GPs (94%) accessed the service through the 1800 freecall number, rather than by fax. Three-quarters identified no other suitable, accessible source of urgent psychiatric advice. The most common topic discussed was medication (77%), with lower demand for discussions of general management principles (12%) or diagnosis (7%).

The feedback was very positive:

- 99% of respondents indicating that they would consider using the service again.
- Over 95% were satisfied with the service in terms of ease of use, helpfulness of advice, and ease of interaction with the psychiatrist.
- Over 85% rated *GP-Psych Support* as more accessible, reliable, and the advice more appropriate than other sources.
- Over 70% said contact with the service had increased their knowledge about the management of mental disorders and their confidence in managing mental health problems, and had improved the quality of care they provided to their patients.
- 53% reported greater willingness to manage complex mental health problems.[12]

In the coming world of primary care—with a big increase in chronic disease in an ageing community, and with a worsening undersupply of general practitioners as well as other specialists—the model of easy-access telephone consultation between practitioner and consultant offers sound education, skill enhancement, fewer outpatient referrals, and thus financial advantages.[13]

Chronic disease management—Disease management programs for chronically sick people are proliferating for the same reasons, and because chronic illness accounts for most health expenditure. "The personal and economic burden of a rapidly ageing population with its inherent challenge on how better to manage chronic disease represents the next global crisis," is the slogan repeated in every issue of *DM World e-Report*.

Conditions such as asthma, chronic obstructive lung disease, heart failure, depression, diabetes, hypertension, and renal disease are being managed by programmes that incorporate emerging technologies, in particular computers with telephone links.

The results are impressive: disease management programmes appear to reduce service use and to create financial savings while enhancing self management by support, education, and involvement. That is true of diabetes,[14]asthma,[15,16] paediatric asthma,[17] and heart failure in the elderly.[18] For instance, the authors of one study noted, "a

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commercially delivered heart failure disease-management program significantly reduced hospitalisations, emergency department visits, and skilled nursing facility days. The intervention group had 17% lower costs than the control group; when intervention costs were included, the intervention group had 10% lower costs".

General practitioners think it is their job to manage chronic diseases; they do not always see the need for disease management programmes. Lagging physician acceptance is the biggest obstacle to implementing disease management programmes in the United States. Many doctors retain the model of episodic care, so do not see the value of education focused, prevention focused disease management programmes.

Good programmes support (rather than replace) medical services. By providing regular contact with chronically ill patients, telephone programmes can monitor clinical status between doctor visits, deliver patient education and other counselling, send appointment reminders, and facilitate peer support and referrals for coping with illness. Doctors are freed to practise clinical medicine.

McKesson Asia Pacific is providing pilot chronic disease management programmes with several health insurers in Australia, and results should be available soon.

Telephone-based programmes are clinically effective and cost-effective. They are here to stay, and District Health Boards and Primary Health Organisations will have to decide whether to provide them themselves ("CarePlus" is one model), or to contract with an outside provider, with the advantages of sophisticated technology support.

Other applications—Bentley listed the activities of the McKesson Asia Pacific health call centre in Perth:[19] *HealthDirect* triage and advice; *HealthInfo* information and health policy; *SouthWest24* mental health services; *Residential Care Line*; *Sexual Assault Referral Centre Crisis Line*; *Drug Cautioning Line*; *Health Incident Lines* (public health emergency lines as required, e.g. SARS line); and *PEP* (post-exposure prophylaxis for HIV).

Programmes being piloted were *Secondary triage for the St John Ambulance; Chest pain program* for insured patients; *Outpatient bookings* (an appointment, reminder and tracking system); and *Surgical patient follow up.*

McKesson's Sydney centre runs the mental health service *Greater Murray Access Line*, as well as a gambling line, and chronic disease management.

Nurse-on-call has started in Melbourne. Tenders are to be called for a national service in Australia.

Conclusion

The original aims—easy access to health advice, and demand management—have expanded and multiplied, and the broader capabilities of a national health call centre are now beginning to be utilised.

Conflict of interest statement: There will be a perception of conflict of interest: all of us work for, or in association with, McKesson NZ Ltd, which operates Healthline, the Well Child Advice Line, Mental Health Line, and which operated the MenzB Line.

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