Rapid response systems

To the Editor: Hillman and colleagues give an excellent overview of rapid response systems (RRSs).[1] There is no doubt that this system of care that matches "the right people — with the right skills and knowledge — with the right patients at the right time" is a vast improvement on the usual traditional hierarchical referral model of care, particularly for patients in acute care hospitals whose condition is deteriorating.

However, the authors have not discussed our now overdependence on such systems[2] and that, despite this, overall patient safety has not improved in our hospitals.[3-5] Perhaps there is another side to the RRS story. Having been involved with the RRS journey from the beginning,[6] I am concerned that what we now see on our wards with patients with deteriorating conditions is a syndrome of learned helplessness that is underwritten by the presence of the RRS. Leading on from this, if the RRS is not appropriately activated, for whatever reason, the patients with deteriorating conditions often get no care, as the ward staff now have no cognisance of how to give basic first aid to such patients.[7] There is now the palpable sense in the general wards that we do not need to worry about these patients at all, as all we need to do is activate the RRS. The concept of basic clinical patient care at the bedside has been lost.

Rather than the research agenda that is proposed by Hillman et al, we might need to gain a better understanding of why we need RRSs at all? Also, what is it that we are, or are not, teaching our students and junior doctors that makes them so dependent on this system of care? While undoubtedly there are RRS calls that require sophisticated resuscitation skills, the vast majority of calls are for simple interventions that can easily be carried out in the ward setting, or even no interventions.

Of particular concern, the authors claim that "It has been established that ICUs and RRSs identify and treat patients with a similar level of mortality risk". In making this claim, the only reference cited is work undertaken by myself and colleagues that makes no such claim at all.[8] The quoted reference is quite simply, as the title explains, an "Association between clinically abnormal observations and subsequent in-hospital mortality: a prospective study".

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Competing interests: I am the founder and a shareholder of Patientrack.

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> "I am concerned that what we now see on our wards ... is a syndrome of learned helplessness that is underwritten by the presence of the RRS"
>
> Buist

> "the greater the number of calls, the greater the reduction in deaths and cardiac arrests"
>
> Hillman

6 Buist M, Bernard S, Nguyen TV, et al. Association between clinically abnormal observations and subsequent in-hospital mortality: a prospective study. *Resuscitation* 2004; 62: 137-141.

In reply: Many thanks to Buist for his comments. He is quite correct in pointing out that we used the wrong reference.[1] The correct reference was another study showing that the mortality of patients subject to a rapid response system (RRS) was higher than that for patients in an intensive care unit.[2] Our apologies for this error.

In relation to the criticality of RRS calls, the largest trial on RRSs showed that of over 2000 calls, only five did not require critical care interventions.[3] Moreover, the greater the number of calls, the greater the reduction in deaths and cardiac arrests.[4]

The high number of potentially preventable deaths and cardiac arrests when the admitting team cared for seriously ill patients on the general wards was the reason why RRS teams are now operating in most Australian hospitals.

Finally, in our opinion, the reference used to demonstrate overdependence on the system[5] does not, in fact, show overdependence but, instead, a strong association of a reduction in deaths and cardiac arrests with the gradual uptake of RRSs in New South Wales hospitals.

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Strongyloidiasis: a case for notification in Australia?

To the Editor: Australia's National Notifiable Diseases Surveillance System (NNDSS) is used to monitor trends in 58 communicable diseases or conditions. The incidence of notifiable diseases can be decreased by public health action. Some diseases require rapid local responses, such as outbreaks of vaccine-preventable or foodborne diseases. Upward trends in the incidence of other notifiable diseases — for example, tuberculosis, sexually transmitted infections and bloodborne viruses — can be managed by less-rapid responses. The NNDSS exists not for data collection per se, but for public health action.

The NNDSS is a dynamic tool of great value in specific diseases, particularly when control or elimination programs are being implemented, such as for hydatid disease, polio and measles. Diseases and conditions can be added or removed as required by the need for public health action.

Currently, Aboriginal people in rural and remote communities have a very high prevalence of strongyloidiasis, a lifelong disease caused by infection with the gastrointestinal nematode *Strongyloides stercoralis*.[1] This parasite is very rare in mainstream Australian communities and is generally acquired overseas or from outback Indigenous communities. Prevalence in many Indigenous communities is 15% or greater, and laboratory records indicate that the infection is widespread in Indigenous communities in Queensland, the Northern Territory, Western Australia, northern South Australia and northern New South Wales.[2,3] However, the epidemiological picture is patchy because data are not routinely collected.[4,5] Management of individual Indigenous patients appears to be inadequate — many do not receive appropriate treatment, with potentially fatal consequences.[5] A recent systematic literature review of strongyloidiasis in Indigenous Australians highlighted lack of data as one of the major barriers to controlling and eliminating the disease.[5] Strongyloidiasis can be easily and cheaply cured by oral ivermectin at individual patient and community levels.[1]

We urge the Australian Government Department of Health to consider placing strongyloidiasis on the NNDSS, in order to establish an accurate estimate of incidence that will inform the necessary public health action at community, regional and national levels. We propose that all reported cases be laboratory confirmed, based on faecal examination or serology.[6,7] These data can be collated and used to guide implementation of a national strongyloidiasis elimination program.

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> “Prevalence in many Indigenous communities is 15% or greater”
>
> Speare et al

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Inappropriate pathology ordering and pathology stewardship

To the Editor: We commend Spelman's insightful discussion of the need for pathology stewardship.[1]

The Royal College of Pathologists of Australasia (RCPA) advocates a structured approach underpinned by national standards, aimed at minimising harm to patients as well as reducing laboratory and hospital costs. The College recommends hospital pathology stewardship programs with multidisciplinary input; harmonisation of testing and reporting; electronic decision support systems; educational strategies; and collection and analysis of national and state data.

Within this advocacy framework, the RCPA has led or collaborated on many projects relating to harmonisation, standardisation and structuring of reports, consumer benefits and risks, effective communication of results, point-of-care testing, quality of genetic testing (http://www.health.gov.au/internet/main/publishing.nsf/Content/pathology-qupp-index), and a free online educational tool for doctors (http://investigate.med.unsw.edu.au/home.jsf). The College advocates and advises on pathology rotations for junior doctors.

The RCPA Manual (http://www.rcpa.edu.au/Library/Practising-Pathology/RCPA-Manual/Home) provides decision support tools and comprehensive guidance on use and interpretation of pathology investigations.

While these initiatives will promote quality use of pathology,

we stress that coordinated support from major national institutions is needed to effect real change.

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Competing interests: No relevant disclosures.

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General practitioner management of notifiable diseases is central to communicable disease control

To the Editor: Public health units routinely carry out investigations into cases of notifiable diseases, specified by state and territory Public Health Acts, because of the potential impact on the health of the public. Investigations involve contacting individuals and their contacts, and providing advice for follow up and treatment. This may include seeing a general practitioner for further testing, treatment, or prophylaxis of contacts.[1] To assess the extent of input from GPs in managing notifiable diseases we documented GP encounters related to public health unit communicable disease control activity in inner-western and south-western Sydney.

Visits to general practitioners and tests associated with communicable disease investigations

Condition or infection investigated (suspected and confirmed cases)	No. of investigations	Average no. of visits per investigation	Average no. of tests per investigation
High-level GP input			
Influenza outbreak*	5	14.8	20.2
Typhoid	1	9.0	17.0
Gastroenteritis outbreak†	17	2.1	3.7
Rubella	2	1.5	1.0
Hepatitis E	8	1.4	1.4
Measles	24	1.0	1.6
Varicella	1	1.0	1.0
Arbovirus	19	0.9	0.8
Pertussis	18	0.9	0.7
Legionella	9	0.8	0.9
Intermittent GP input			
Hepatitis A	4	0.5	0.5
Q fever	2	0.5	1.0
MERS Co-V	2	0.5	1.0
Hepatitis B	7	0.4	0.4
Malaria	3	0.3	0.3
Shigella	11	0.2	0.3
< 16 Chlamydia‡	6	0.2	0.0
Salmonella	9	0.1	0.1
Cryptosporidiosis	11	0.1	0.0
No GP input			
Rotavirus	5	0.0	0.0
Mumps	5	0.0	0.2
Meningococcal	7	0.0	0.0
Lymphogranuloma venereum	1	0.0	0.0
Invasive pneumoccocal disease	22	0.0	0.0
Hepatitis D	3	0.0	0.0
Hepatitis C	2	0.0	0.0
Haemophilis influenzae B	1	0.0	0.0
Diphtheria	4	0.0	0.5
Creutzfeldt–Jacob disease	1	0.0	0.0
Brucellosis	2	0.0	0.0
< 16 Gonorrhoea‡	1	0.0	0.0

MERS Co V = Middle East Respiratory syndrome (MERS) coronavirus.
* Three or more epidemiologically linked cases of Influenza-like Illness in residents or staff of child care or aged care facilities within 72 hours PLUS at least one case with a positive laboratory test result OR at least two cases with a positive point-of-care test. † Two or more cases of vomiting or diarrhoea in an institution are followed up as a possible outbreak. ‡ Conditions followed up in children aged under 16 years only to ensure they are not at risk. ◆

Data on routine communicable disease activity in Sydney and Sydney South West Local Health Districts were collected over 2 months from 1 June to 31 July 2014. For all investigations into suspected and confirmed cases of notifiable disease, data were collected on the type of condition, visits to GPs and tests specifically requested as part of routine public health follow-up. The study was approved by Sydney Local Health District Ethics Review Committee. There were 220 investigations associated with suspected or confirmed cases of 34 notifiable conditions during the study period, requiring 212 GP visits and 286 tests. The Box lists conditions according to their required level of GP input (those involving GP encounters more than 50% of the time were considered to require high-level GP input). Influenza and gastroenteritis outbreaks, typhoid, rubella, hepatitis E and measles were the conditions requiring the highest level of GP input per investigation. Measles, arbovirus, pertussis and gastroenteritis outbreaks were conditions with the highest frequency of suspected or confirmed cases that also required high-level GP input. Based on population size, we estimated that, if extrapolated to state level, communicable disease control activities would have resulted in about 1047 GP visits across New South Wales in the same time period.

Our findings indicate that GP encounters are central to communicable disease control and shed light on which conditions require the most input from GPs. Influenza outbreaks, measles and gastroenteritis outbreaks are of particular concern. Influenza outbreaks require particularly high-intensity input from GPs, while measles and gastroenteritis outbreaks are frequently investigated conditions that require high-level GP input. Influenza and measles are serious conditions, often involving vulnerable populations (nursing home residents and children).[2,3] Our results indicate that primary care plays an important role in protecting the public from conditions with potentially serious consequences. This finding should be considered in policy discussions about access to primary care.

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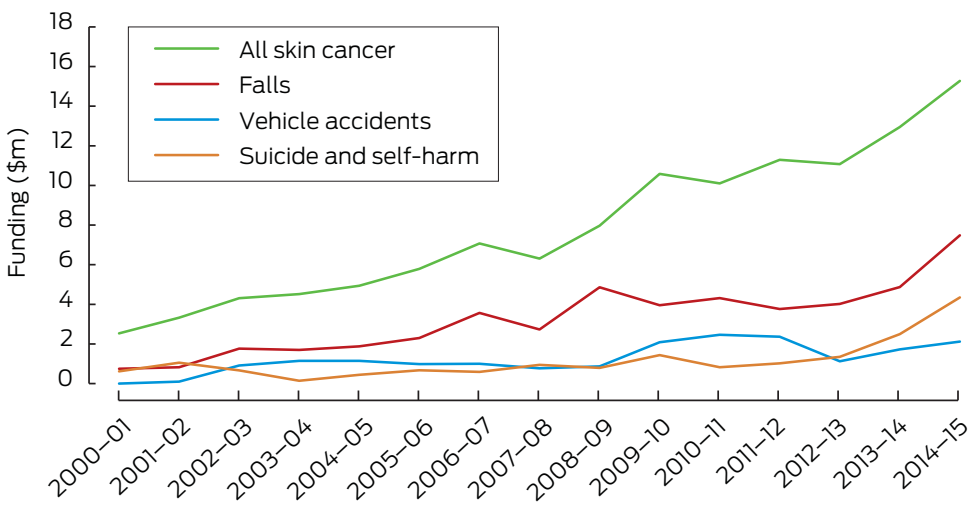
> “primary care plays an important role in protecting the public from conditions with potentially serious consequences”
>
> Bateman-Steel et al

The gap remains: NHMRC research funding for suicide and self-harm, 2000–2014

To the Editor: In an article on National Health and Medical Research Council (NHMRC) funding for the National Health Priority Areas, Christensen and colleagues concluded that there was no narrowing of the gap in the proportion of funding provided to mental health research from 2001 to 2010.[1] In particular, NHMRC funding per disability-adjusted life-year was the lowest for suicide and self-harm in comparison with other mental health categories and did not increase over 2001–2009.

Analysis of NHMRC research funding for suicide and self-harm in comparison with other causes of high morbidity and mortality in Australia from 2000 to 2014 does not indicate that much progress has been made, and the gap still remains. Intentional self-injury in Australia ranked higher as the leading cause of death in 2013 than did skin cancers and accidental falls (14th, 16th and 18th leading cause, respectively).[2] In 2013, suicide claimed more lives (2520) than either skin cancers (2209), accidental falls (1920) or transport accidents (1428); and the standardised suicide rate considerably exceeded mortality rates for these causes of death (10.7

National Health and Medical Research Council funding in selected research areas, 2000–20143-5



compared with 8.3, 6.7 and 6.0 per 100 000 population, respectively).[2] Yet NHMRC research funding for suicide and self-harm from 2000 to 2014 was lower than that for all skin cancers, falls and vehicle accidents (Box).[3-5]

Over this period, the NHMRC invested $17 407 912 in suicide research in the mental health category, funding 41 projects, including 21 project grants, four research fellowships and three early career fellowships.[3] We have observed an evolution and a shift in the types of funding available and granted. NHMRC project grants to create new knowledge, which dominated in the early 2000s, have received less and less funding over time, suggesting that the complexity of suicide research may be out of step with NHMRC competitive criteria. On the other hand, funding opportunities for grants to build Australia's future capability (such as research, early career and career development fellowships) have increased, including fellowships to the NHMRC Centre of Research Excellence in Suicide Prevention (CRESP). Although only in operation for 3 years, funding for this new centre ($2 564 924 for 2012–2017) accounts for almost 10% of the total NHMRC actual expenditure. Three of five NHMRC project grants over 2013–2014 were awarded to CRESP researchers.

However, this investment is simply not enough. One centre of research excellence is not sufficient to make a serious dent in the problem of suicide and self-harm in Australia. All the while, we are losing seven people a day to suicide, a fact that requires an immediate response. The outrage associated with deaths from HIV/AIDS led to social action and subsequent science that has reduced the impact of this disease, allowing people to live meaningful lives. We need to do the same for suicide, which takes the lives of our productive and young people every day.

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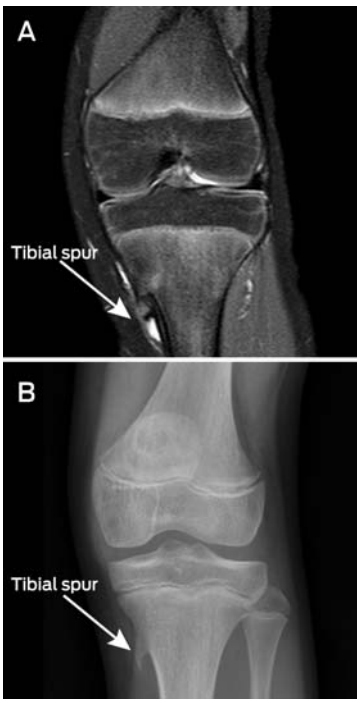
General practitioner-referred magnetic resonance imaging for musculoskeletal conditions: not a substitute for plain x-ray

To the Editor: In November 2012, the Australian Government extended requesting rights for Medicare-eligible magnetic resonance imaging (MRI) scans to general practitioners for "a small set of clinically appropriate indications"[1] in patients under the age of 16 years. The purpose was

> avoiding exposure of children to unnecessary radiation associated with other types of diagnostic imaging like computed tomography (CT) scans.[1]

> "we are losing seven people a day to suicide, a fact that requires an immediate response"
>
> Christensen et al

1 Magnetic resonance image (A) and x-ray image (B) of the left knee of the 11-year-old girl



With musculoskeletal MRI, a Medicare-eligible scan is performed "following radiographic examination".[1]

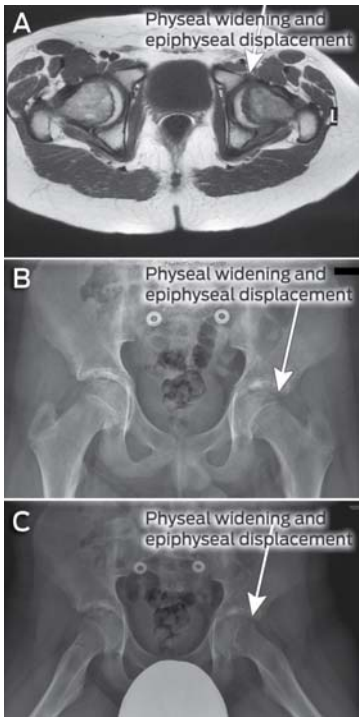
Plain x-ray, rather than MRI, remains the gold standard for diagnosing most musculoskeletal conditions in children, and we report two cases where the initial use of MRI rather than x-ray led to a delay in diagnosis.

First, an 11-year-old girl was investigated for a 3-month history of left knee pain and locking. An ultrasound and MRI scan (Box 1, A) were performed, although an x-ray was not done. As no cause for the symptoms was identified on the ultrasound or MRI, the patient was referred to an orthopaedic surgeon, who requested an x-ray (Box 1, B). This showed a large proximal tibial spur tethering the semitendinosis tendon. This was poorly visualised on MRI and had not been reported. The patient's symptoms resolved after excision of the spur.[2]

Second, a 13-year-old boy with a 3-week history of left hip pain and

limp underwent MRI (Box 2, A) without a prior x-ray for suspected Perthes disease. The report stated "left hip joint effusion, without other identifiable abnormality".

2 Magnetic resonance image (A), pelvic x-ray, anteroposterior view (B) and pelvic x-ray, frog-leg view (C) of the pelvis of the 13-year-old boy



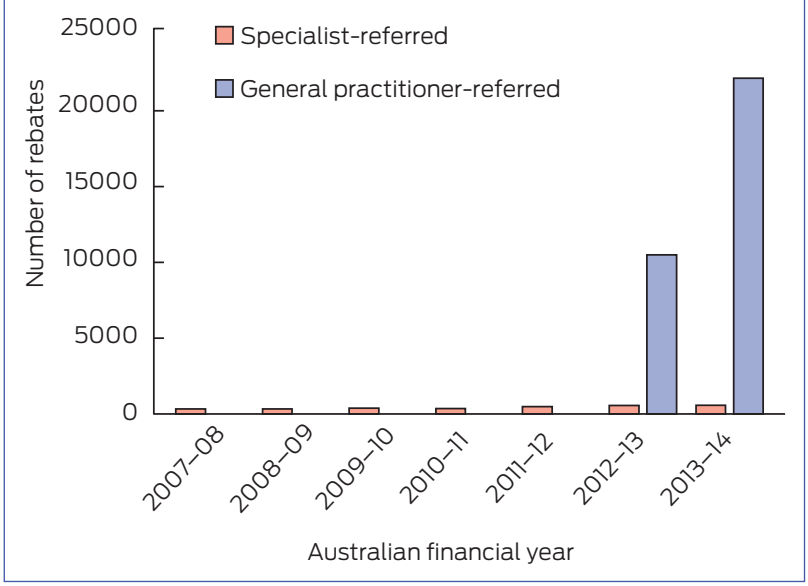
When symptoms persisted, the patient was referred to a paediatric emergency department. The magnetic resonance images were reviewed and a slipped capital femoral epiphysis (SCFE) was evident (but had not been reported). Standard hip x-rays showed an obvious SCFE (Box 2, B and C). X-ray is always the initial investigation of choice for Perthes disease and SCFE (MRI should be reserved for equivocal cases), and SCFE is a far more common diagnosis than Perthes disease during adolescence.[3]

Over 20 000 GP-referred Medicare-rebated MRI scans were performed in patients under the age of 16 in the 2013–14 financial year (Box 3). The number of referrals per GP in Australia was 0.44 in 2012–13 and doubled to 0.90 in 2013–14.[4,5]

In contrast, specialist referrals for paediatric MRI were 0.31 scans per specialist in 2007–08 and 0.37 in 2013–14;[4,5] the number of MRI scans referred per specialist has not altered appreciably.

While it is important to decrease radiation from CT scans in children under 16 years, it is also important to remember that MRI is mostly unhelpful in diagnosing paediatric musculoskeletal complaints — most of which can be confirmed on plain x-ray after taking an accurate history and examining the patient. Due to the significant cost to the health care system of MRI, we suggest that evidence of prior x-ray imaging should be a requirement before Medicare funds an MRI scan.

3 Number of Medicare rebates for magnetic resonance imaging scans in patients < 16 years of age[4,5]



> "MRI is mostly unhelpful in diagnosing paediatric musculoskeletal complaints"
>
> Francis et al

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