Editorials

Child health care in general practice:

priorities for education and practice

Children represent up to 25% of all consultations in UK general practice, but the spectrum of problems encountered is changing. While there is continued pressure for acute consultations for febrile illness, the number of serious bacterial infections is very small, and there has been an inexorable rise in non-communicable diseases.[1] For example, hospital admissions for acute illness rose by 26% from 1999 to 2010[2] yet up to one-third of 10–11-year-olds in 2012–2013 in England were considered overweight or obese.[3] Four articles published in this issue of the *BJGP* highlight aspects of child health in primary care and the challenges they present to GPs. These articles raise important issues about how primary care clinicians are trained in child health and the changing skills they now require for practice.

IDENTIFYING SERIOUS INFECTIONS IN PRIMARY CARE

Butler and colleagues prospectively studied the prevalence, diagnosis, and treatment of urinary tract infections (UTIs) in children aged 3 months to 5 years presenting with an acute illness to primary care.[4] They found 339 children with a laboratory-proven UTI among 6079 children (5.6% prevalence). GPs only suspected UTI in one-third (31.7%) of children who ended up having one confirmed on culture, resulting in poor targeting of antibiotics. Further, only 26.0% of children 'serendipitously' treated were given the right antibiotic (that is, sensitive to cultured organism) compared to 77.1% of those with a suspected UTI.

Of note, although there was a half-day faster symptom resolution, the overall recovery period was similar among children prescribed the right, the wrong (usually amoxicillin), or no antibiotic. It would be interesting to follow these children long term, particularly those prescribed none or inappropriate antibiotics, but there may be too few recurrent infections to assess long-term outcomes. Butler's study highlights the need for better diagnosis and treatment targeting, possibly using point-of-care inflammatory markers.

Clinical prediction rules (CPRs) are algorithms that integrate symptoms, signs, and laboratory values to predict the likelihood of an outcome. While many CPRs are published, few are used in general practice.[5] van Ierland and colleagues assessed the applicability and diagnostic value of published CPRs for identifying serious infections in febrile children in primary care by validating them in 9794 children presenting in Dutch out-of-hours care.[6] They found 794 (8.1%) of children were referred to the emergency department, a reasonable proxy outcome for serious illness in primary care. The CPRs tested performed moderately at best and disappointingly all CPRs had low sensitivity (that is, poor rule out value) although several had high specificity (that is, good rule in value). The simplest rule using only four vital signs seemed to work as well as more complicated ones.

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They also found that CPR performance varied widely from original derivation studies, highlighting the need for external validation before implementing new CPRs. Two potential explanations for this discrepancy include the rarity of recording certain features (for example, only 2% of contacts had vital signs documented) and the unavailability of diagnostic tests. So where next for CPRs? The huge mismatch between academic publications of new CPRs and their later performance in validation studies makes us question whether they are the best way to advance diagnosis in primary care. The ideal framework to evaluate new CPRs as being 'fit for purpose' sadly seems an unattainable goal, even for priority areas like febrile illness.

PARENTAL PERCEPTIONS AND EARLY CHILDHOOD INVESTMENT

Black and colleagues used data from the National Child Measurement Programme, which includes the height and weight of all state-schooled children in England at ages 4–5 and 10–11 years, to compare parental perception of their child's weight and body mass index (BMI) measurement.[7] The questionnaire study had a 15% response rate, including 2976 children from five diverse primary care trusts. A striking 20% of children were above the 90th centile for BMI measurement, yet only one-third of parents correctly classified their children in the proper weight category. Certain factors predicted underestimation of weight such as sex (male) and ethnicity (black, South Asian): this matters because South Asian boys are at greatest risk of health consequences from obesity.

The difference between 'what parents see' and the reality of their child's weight is troubling, and probably reflects a multitude of social and cultural influences. Obesity and lifestyle-related illnesses in today's children are unlikely to be fixable by GPs alone, but more effective ways to at least recognise abnormal weight, engage with parents and children, and intervene are urgently needed.

The fourth article in this edition outlines the role of primary care in preventing mental illness.[8] Like obesity and cardiovascular disease, the damage seems to start early and manifests later in life. Newton proposes that child maltreatment, including neglect and emotional abuse, creates vulnerable individuals predisposed to mental illness and chronic disorders in adulthood. Early identification and management of child maltreatment, perhaps using quality

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indicators embedded into routine clinical practice,[9] may avert these later life problems.

Newton also highlights the difficult social circumstances of young single mothers, and the relationship between maternal mental illness and childhood difficulties. The primary care team, with their close contacts with children and young mothers are ideally suited to address these problems, but they need assistance from parental support programmes and other services.

PRIORITIES FOR EDUCATION

These articles illustrate the complexity of managing children in primary care, little of which is reflected in the current narrow focus of child health quality markers in the UK.[9] But they also highlight broader questions of how to equip future GPs for this changing spectrum of paediatric practice? For example, how are GPs to learn how to assess for serious illnesses without adequate exposure to unwell children? Even in priority areas like obesity, GPs have limited training.[10]

Training of primary care professionals in Europe and North America is variable.[1] In Canada, family doctors train for 2 years, and in the US for 3 years, with most training programmes requiring 2 months of dedicated child health (for example, general paediatric ward and emergency department). However, in the UK GPs train for 3 years following their 2-year foundation course and in Europe most GPs train for 3–4 years but neither have dedicated paediatric components.[1]

For some time, there have been calls in the UK to add a fourth year to GP training. But simply adding another year will not fix the problem: the composition of training must change to be relevant and salient. The Royal College of General Practitioners' proposal to lengthen training specifies that trainees 'receive specialist-led training in child health and mental health problems.'[11] We strongly agree that trainees need to spend at least 6 months in settings where they gain experience not only in acute paediatric medicine, but also in mental health, chronic, and lifestyle-related illness. Some of this will need to occur in hospitals and some in the community, perhaps taking advantage of new 'polyclinics' where paediatricians and GPs can both work and train together.[12,13] But clearly the status quo is unlikely to equip the GPs of the future.

PRIORITIES FOR PRACTICE

Studying childhood serious infections in primary care is fraught with difficult questions about acceptable rates of false positives (such as unnecessary referrals or antibiotic prescriptions) and false negatives (such as missed cases). Validated clinical algorithms could be developed one day, but meanwhile clinicians need to maintain a high index of suspicion and should document vital signs and other known 'alarm signs' in children presenting with acute illnesses. Always ensure adequate safety netting by educating caregivers on the signs of worsening illness.

For weight problems to be assessed in primary care, they must first be identified. Practices are not routinely provided with school measurement data and do not routinely weigh children, thus missing opportunities to identify obese and overweight children.[9] Similarly, mental health problems and child maltreatment concerns should be taken seriously and promptly referred. But sadly, resources and funding have not kept pace with these emerging child health priorities.

TIME TO ACT

A common theme in these four articles is difficulty in diagnosis, whether it is GPs' diagnosing serious illnesses, parents' recognising obesity, and (all of us) recognising the early markers of future mental health problems. Without accurate or targeted diagnosis, how can we possibly select interventions to prioritise (and fund)? Added to this, are questions of how much accuracy is feasible to achieve in primary care with the limited tools at our disposal, and what is the role for adopting more sophisticated tools, whether better markers for quality of child care, routine BMI measures, vital signs measurements, or point-of-care inflammatory markers?

Child health has long been on policymakers' agenda but seldom makes it any further, and GPs on the front line are faced with competing demands for acute and chronic health priorities for children and adults, with fewer and fewer resources. The four articles in this issue illustrate that high quality child health research is ongoing, but much more research and resources are urgently needed to improve the care of children.

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