If emergency GPS is to continue in the DGH, commissioning health authorities and trusts must recognise the needs of these willing surgeons in terms of additional support for CPD to ensure a quality service can be maintained locally. If solutions are not found, tertiary paediatric centres will undertake larger GPS caseloads at the expense of specialist neonatal and paediatric cases. This will have training implications for their own trainees[4]. Further, if this 'drift' towards centralisation is not stopped, it will eventually impact on the ability of DGH paediatric departments to safely accept emergencies. Eventually, this course will undermine the status of the hospital as a fully functioning DGH.

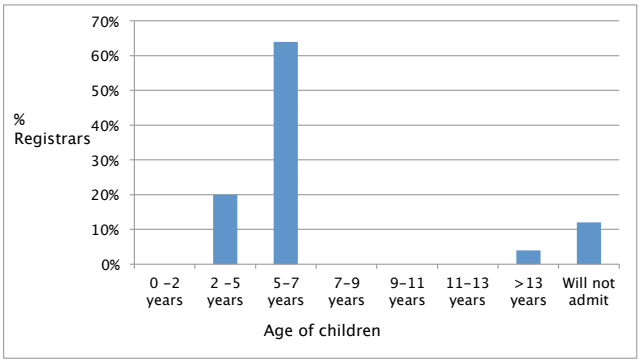

Fig 3. Minimum age profiles of patients trainees would operate on with appendicitis.

The author has no conflict of interest.

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LACTIC ACID BACTERIAL INFECTION, PROBIOTICS AND GUT MICROBIOMES

Editor,

The 21st century has seen the emergence of the study of the genome (genomics) and its related disciplines, including metagenomics and transcriptomics, relating to prokaryotic, as well as eukaryotic organisms. This has largely happened due to technical developments in DNA sequencing technology, particularly with next generation sequencing (NGS). As a result, we are now beginning to read reports on the many applications of such advanced sequencing technologies in many disease and ecological states, including deep screening of the complex ecology of the human gut and other anatomical sites. Much attention has recently been focussed on advances in the knowledge of the gut microbiome, whereby this has been called "*the last human organ*" to be discovered and further investigated.[1]

Several such investigations have identified the presence of lactic acid bacteria (LAB) in such niches[2,3] and other studies are beginning to link variation in lactic acid bacteria with a variety of disease states, including obesity[4] and diabetes.[5] For instance, some of our collaborative work with colleagues has demonstrated that DNA sequencing of the gut microflora revealed that bacterial composition of a diabetic group was different from that of a healthy group.[5] In addition, *Bacteroides vulgatus* and the genus, *Bifidobacterium*, were poorly represented in the microbiota of the diabetic group, and a significant decrease was observed for *Bifidobacterium* by real-time PCR. Taken together, in this work we observed the characterisation of gut microbiota in diabetic patients, which suggests that the gut microbiota of diabetic patients have changes associated with occurrence and development of diabetes.

With all of this exploitation the functional properties of the lactic acid bacteria in foodstuffs and the increased consumption of such probiotic products, we believed it timely to examine any potential increase in clinical infection with such organisms locally.

We examined the incidence of clinically significant infections with the LAB over the first decade of the new millennium (2000-2010) at Belfast City Hospital, whereby we defined a clinically significant infection, where a LAB was the aetiological agent of an episode of bacteraemia. There were ten cases in total, which consisted of LAB belonging to three genera, namely *Pediococcus* (5 cases), *Lactobacillus* (3 cases) and *Leuconostoc* (2 cases). All of these genera have been used in a variety of fermented foods, although we cannot confirm that these infecting organisms came from either a fermented food or a probiotic product, as these organisms are natural inhabitants of various anatomical niches within the human host. Of these 10 cases, two cases involving *Pediococcus* were from patients attending the then NI Regional Cancer Centre at Belvoir Park Hospital. Previously,

it has been shown that the gastrointestinal tract of patients undergoing cytotoxic chemotherapy regimens can become leaky, thus allowing the translocation of gut microflora into the circulatory system and cause bacteraemia. With regard to the antibiotic susceptibility of the 10 LAB isolates examined against the β lactams (penicillin), the macrolides (erythromycin) and the glycopeptides (vancomycin & teicoplanin), antibiotic resistance rates were 20%, 20%, 70% and 70%, respectively. One LAB isolate was multiresistant, i.e. resistant to two classes of antibiotics from three; i.e. β lactam + glycopeptides and another LAB isolate was pan-resistant, i.e. resistant to all three classes of antibiotics. However, even with such resistance patterns, there were alternative antibiotic management strategies for each of these isolates, namely the macrolides for the former isolate and tetracycline for the latter isolate.

From these reports, although the LAB have been involved in a small number of cases of bacteraemia over a recent 10 year period, these organisms are not considered frequent causal agents of bacteraemia and are considered organisms of low pathogenicity (if any). Therefore, the benefits of their use as mediators of immunological homeostasis of the gut outweigh their risk as causal agents of bacteraemia, except, as we can see from above, in patients with an immunocompromised or immunosuppressed status, which may require further investigation.

The low frequency of their aetiological involvement in clinical infection allows us to move forward with relative confidence with immunocompotent populations, relating to the novel and innovative ways we can deploy such organisms to moderate host microbiomes.

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A POTENTIAL DIAGNOSTIC ROLE OF DUAL-PHASE ^{18}F-FDG PET/CT SCANNING

Editor

Differentiation between benign and malignant processes is helped by positron emission tomography – computed tomography (PET-CT). This involves a scan one hour after intravenous injection of Fluorodeoxyglucose (FDG) tracer.[1] Malignant lesions use glucose preferentially, with prolonged affinity for FDG, thus appearing as a "hot spot" as quantified by elevated maximum standarised uptake value (SUVmax). Infective processes also induce increased FDG uptake.[2] Dual-phase scanning, which employs both early and delayed scans may separate these conditions. We report two cases where dual-phase scanning resulted in a change in the patients' diagnosis and management.

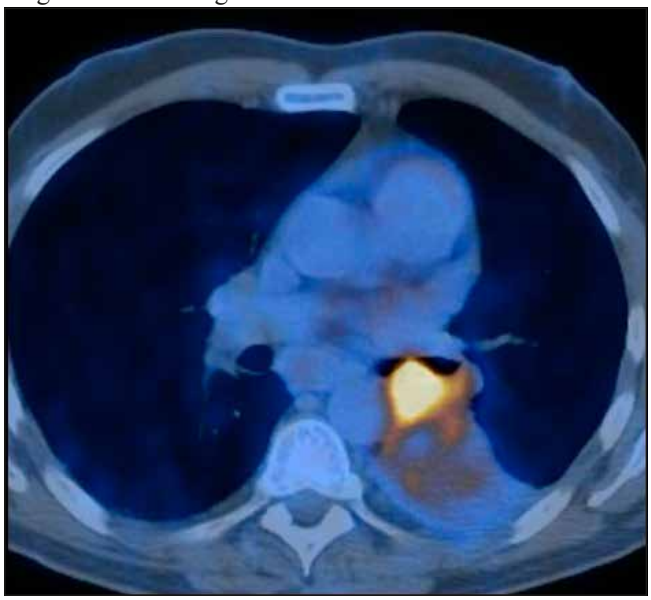

Fig 1. The initial study demonstrating a bronchial lesion.