Availability of essential diagnostics in primary care in India

This year, WHO published the first essential diagnostics list1 and declared its commitment to making diagnostics as important as essential medicines in universal health coverage.2

The essential diagnostics list includes 113 tests, grouped by two broad levels: diagnostics for primary care settings with no or basic laboratories, and diagnostics for facilities with clinical laboratories.3 At the primary care level, general tests in the list include urine dipstick, complete blood count, haemoglobin, glucose, and microscopy, and disease-specific tests include tests for HIV, tuberculosis, malaria, syphilis, and hepatitis B and C.4

The essential diagnostics list offers countries a benchmark they can use to measure and improve diagnostic services. We used the list to assess availability of essential tests at the primary health centres in the Indian public sector.

For this pilot facility survey, we chose three districts in three states of India, in north, south, and central zones (figure). Within each district, with permissions from district health authorities, we randomly selected 20% of the all primary health centres. Each primary health centre was visited by a researcher (MK) with a checklist, to assess availability of diagnostics.

Between Dec 13, 2017, and March 22, 2018, we assessed 21 primary health centres in Tumkur (Karnataka), 13 in Fatehpur (Uttar Pradesh), and six in Wardha (Maharashtra). No participant data were collected and ethics approval was deemed unnecessary.

Our results show that all three districts had major gaps in test availability, and there were large variations across the districts, with Wardha faring relatively better, and Fatehpur faring worst (appendix).

Some of the tests listed in the essential diagnostics list were not available in any district, such as blood lactate, hepatitis B e-antigen, anti-hepatitis C virus antibody, malaria rapid diagnostic tests, sputum tuberculosis loop-mediated isothermal amplification test, anti-HIV/p 24 rapid test, and a combined test for syphilis and HIV.

With regard to the other tests, availability varied widely. For example, primary health centres in both Tumkur and Fatehpur had limited or no availability of blood counts and glycated haemoglobin A1c tests, whereas these tests were available in Wardha district. Of note, Wardha district used a public-private partnership model, in which diagnostic testing was outsourced to a private laboratory.

For infections, the hepatitis (HBsAg) rapid test was available in 76% of the facilities in Tumkur, 38% of the facilities in Fatehpur, and 100% of the facilities in Wardha. For HIV and syphilis, only 38% of facilities in Fatehpur had these tests, whereas all facilities in Wardha provided the tests. Microscopy for tuberculosis and malaria was available in some, but not all, primary health centres.

Our pilot survey revealed gaps in the availability of essential tests. Such gaps can limit the ability of health workers to manage common diseases, and the ability of the health systems to respond to threats such as outbreaks or antimicrobial resistance.1

To confirm our findings, larger, nationally representative sample surveys are necessary, and should cover both public and private sectors. Surveys must cover all key dimensions of access—availability, use, and quality—to generate a comprehensive diagnostics access scorecard.

India has recently launched a free diagnostics service initiative under the National Health Mission to make some tests freely available.4 India is also developing a national essential diagnostics list.5 Both initiatives should improve access to essential tests, and the national essential diagnostics list could become the standard for benchmarking access, since it will better reflect national needs and disease burden.

This project was supported in part by FIND, Geneva, and Canadian Institutes of Health Research. KW and MP served on the WHO SAGE IVD Group that developed the first edition of the WHO Essential Diagnostics List. KW, SM, CCB, and ZK declare no competing interests. We are grateful to district health officials of Tumkur, Fatehpur, and Wardha districts in India for their support: We are also grateful to Vijayashree Yellappa, Gunnar Krishnamurthy Sanathkumar, Ashwini Kalantri, and Suneha Varghese for their encouragement and support in organising field visits.

madhukar.pai@mcgill.ca

McGill International TB Center (MK, MP)
Department of Epidemiology, Biostatistics and Occupational Health (MK, MP), and McGill Global Health Programs (MP), McGill University, Montreal, QC H3A 1A2, Canada; Indian Council of Medical Research, New Delhi, India (KW); Centre for Health Economics, University of York, York, UK (SM); FIND, Geneva, Switzerland (CCB, ZK); and Manipal McGill Centre for Infectious Diseases, Manipal Academy of Higher Education, Manipal, India (MP)

Antibiotic prophylaxis approaches for urinary tract infections

Recurrent urinary tract infections among patients using clean intermittent self-catheterisation (CISC) are a major concern, especially in patients with spinal cord injury. In this population, urinary tract infections are the most common cause of morbidity and the second most common cause of mortality. Moreover, the prevalence of multidrug-resistant organisms in patients with spinal cord injury is high, at up to 40-5%. Additionally, diagnosis of urinary tract infection is challenging because urine culture is nearly always positive because of urinary colonisation, and symptoms are often non-specific.1

The AnTIC Trial2 is the first large-scale randomised controlled trial to study a CISC population, with 158 (39%) of 404 patients with neurological bladder dysfunction, comparing prophylaxis with no prophylaxis for recurrent urinary tract infections.3 In this trial, the investigators showed the efficiency of a daily, low-dose antibiotic treatment (50 mg nitrofurantoin, 100 mg trimethoprim, or 250 mg cefalexin) to prevent urinary tract infections.4 Surprisingly, only 76 (37%) of 203 patients in the prophylaxis group and 77 (38%) of 201 patients in the control group had a positive urinary culture at baseline.

Overall, the investigators found a 48% reduction in frequency of urinary tract infections in the prophylaxis group, with a significant reduction of symptomatic antibiotic-treated urinary tract infections (p<0.0001). However, considering urinary culture, bacterial resistance was significantly more frequent in this group, especially to three drugs (nitrofurantoin, trimethoprim, and co-trimoxazole).

To address the challenges of antibiotic prophylaxis in individuals using CISC, we did an observational prospective study of 38 patients with spinal cord injuries before and after prophylaxis, to assess the safety and efficacy of a weekly oral cyclic antibiotic regimen with two or three different antimicrobial agents used alternatively at high dose, to prevent urinary tract infections. Over a period of at least 2 years, there was a significant decrease in incidence of urinary tract infections (from 9.4 infections per patient-year to 1.8 per patient-year). Moreover, at inclusion, six (16%) patients were colonised with multidrug-resistant organisms and only two (5%) of them were still colonised after a 2-year follow-up. Another effect we noted was a significant reduction in number of febrile urinary tract infection episodes (p=0.04), whereas the reported strategy by Fisher and colleagues does not reach such an outcome (p=0.24).

We also assessed our strategy after a mean of 63 months of weekly cyclic prophylaxis and confirmed that it did not lead to emergence of bacterial resistance.3 Thus, we believe that, when antibiotic prophylaxis is required, a weekly intermittent high dose of cyclic antibiotic treatment is effective and does not engender emergence of resistance. These results should soon be confirmed by the PACHIU trial (NCT01388413).

We declare no competing interests.

Enterococcus faecium tolerance to isopropanol: from good science to misinformation

Following the publication by Sacha Pidot and colleagues,1 alarmist articles appeared in the lay press, including The Guardian, Reuters, NBC, and The Times.2,3 These stories have (probably inadvertently) mischaracterised the study analysis and implied that alcohol-based handrub is becoming ineffective. In reality, alcohol-based handrub is the most effective agent available for hand hygiene and is a key element in infection prevention. As experts in hand hygiene, we feel these misinterpretations could lower health-care worker compliance

References:
5. Aurélien Dinh, Benjamin Davido, Clara Duran, Frédérique Bouchard, Louis Bernard aurelien.dinh@aphp.fr Infectious Disease Unit (AD, BD, CD) and Pharmacy Department (FB), Raymond Poincaré University Hospital, Assistance Publique Hôpitaux de Paris, Versailles Saint-Quentin University, 92380 Garches, France, and Internal Medicine and Infectious Diseases Department, Bretonneau Hospital, University Hospital of Tours, Tours, France (LB)

*Correspondence

Published Online September 4, 2018 http://dx.doi.org/10.1016/S1473-3099(18)30542-5
Supplementary webappendix

This webappendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplementary webappendix

This webappendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors. Supplement to: Kohli M et al. Availability of essential diagnostics in primary care in India. Lancet Infect Dis 2018.
Figure 1: Availability of essential diagnostics in randomly selected Primary Health Centres (PHCs) in India: A: Fatehpur district (Uttar Pradesh state); B: Tumkur district (Karnataka state); C: Wardha district (Maharashtra state). Availability was benchmarked using tests intended for primary care in the first edition of the WHO Essential Diagnostics List (EDL). Color bars shows the proportion of PHCs in each district that had the tests listed in the EDL.

Note: These three states were selected to provide a snapshot of poor, medium and better quality of public health services in India. India has 28,863 Primary Health Centres (PHCs), designed to provide first-contact care. Of the 216 PHCs in the 3 districts, 40 PHCs (approximately 20%) were randomly sampled: 21 PHCs in Tumkur, 13 in Fatehpur and six in Wardha. All selected PHCs were visited and assessed between December 2017 and March 2018.

Abbreviations- %: Percentage; AFB: acid-fast bacilli; CBC: complete blood count; Dipstick for urinary tract infection; HbA1c: glycated hemoglobin; HBsAg: hepatitis B surface antigen; HBeAg: hepatitis B e antigen; anti HCV: antibodies to hepatitis C virus; LAMP: loop-mediated isothermal amplification test for TB; RDT: rapid diagnostic test; WBC: white blood cell count