You might be surprised to find Jim Yong Kim, President of the World Bank since 2012, being quoted in Prescriber and surprised to hear he has interesting things to say on things other than economics. He is also a medical doctor and an anthropologist and, spelling out his views on the need for evidence-based decisions, whether in economics or medicine, he said: “What I learned from my work as a physician is that even with the most complicated patients, the most complicated problems, you've got to look hard to find every piece of data and evidence that you can to improve your decision-making. Medicine has taught me to be very much evidence-based and data-driven in making decisions.”

His views, on this at least, appear to chime with those of Ben Goldacre, a medical doctor, bestselling author and Director of the Centre for Evidence-Based Medicine (EBM) DataLab at the University of Oxford, who had the idea of setting up a website that would make it easier to interpret high volumes of data to develop an evidence base for prescribing by comparing patterns across England, potentially saving the NHS money and improving prescribing quality.

Peter Brindle, a practising GP and previous Lead for Commissioning Evidence Informed Care at the West of England Academic Health Science Network (WEAHSN), heard Dr Goldacre talk about his idea and about the difficulty of finding funding. He was keen to work on the project and offered to help. The WEAHSN recognised its potential and came to the rescue, with the initial £50,000 in funding.

Comparing prescribing trends in England

Each month, NHS Digital (formerly the Health and Social Care Information Centre [HSCIC]) provides the anonymised, publicly available data about drugs prescribed in England by GPs and non-medical prescribers attached to GP practices, such as nurses, pharmacists and optometrists (though not private prescriptions). The Prescription Cost Analysis for England, published in March 2018, hints at the size of the database, reporting that in 2017, 1.11 billion prescription items
were dispensed in the community and the cost of dispensing those prescriptions was £9.17 billion.1

The raw data files – with 700 million rows – are, however, cumbersome and difficult to navigate, so Dr Goldacre and Dr Brindle, together with Anna Powell-Smith, a computer programmer specialising in data analysis and visualisation, co-developed the long-awaited new website, OpenPrescribing.net, to simplify the navigation process, which was launched in 2016.

OpenPrescribing is a free access website containing five years of NHS prescribing data that makes it easy for anyone – doctors, patients, researchers, journalists for instance – to compare prescribing trends between CCGs and explore the prescribing of selected drugs in general practices in England.

With the NHS under constant pressure to balance the books, while maintaining safety, there is an imperative to manage the cost of prescription drugs. OpenPrescribing’s aim is to improve efficiency by preventing waste and reducing spending and to improve quality and safety in NHS prescribing.

Prescriber published a news feature on OpenPrescribing in January 2016,2 when the project was launched. This article revisits its founders for an update on progress, beginning by asking about the major changes since the website was launched. Dr Goldacre says: “We introduced the OpenPrescribing alerts service – an opt-in email service to notify practices and CCGs when they were ranked poorly on any of the measures we include on the site. We later improved this service by applying a statistical technique3 to let institutions know when they start to deviate in relation to other practices or CCGs. This informs them that there might be an issue much earlier, before they reach a poor ranking position, or when improvements have been made that improve their ranking.”

He adds: “We created a ‘low priority’ prescribing dashboard in response to NHS England policy on items that should not be routinely prescribed in primary care [see Figure 1].” They have also recently introduced categories to filter the prescribing data and added new measures for comparison, covering prescribing of drugs such as trimethoprim,4 low-dose statins,5 pregabalin6 and opioids (see Figure 2),7 he says. “We have also updated some measures, including desogestrel, to reflect changes in its pricing, and removed some that were no longer relevant.”

Another modification the team has created is a cost-saving feature, the price-per-unit tool. Dr Goldacre says: “Here we calculate the cost per pill across all medications, for each practice and CCG in the country, then calculate how much each practice and CCG could have saved if they had prescribed at the same cost as high-performing practices.”

They have also created two tools that use new datasets. Dr Goldacre explains: “The long term trends tool [see Figure 3],8 allows users to explore national prescribing since 1998. The Drug Tariff and concessions tracker9 shows drug prices back to 2010, and highlights when drugs are listed as out of stock and a concession is applied, increasing the cost.

“We wrote several blogs to accompany this tool and show the huge cost impact to the NHS caused by these price concessions. Our data was used as a primary source in the National Audit Office report on price concessions,” notes Dr Goldacre.10

Dr Brindle, who has a new role as Medical Director (Clinical Effectiveness) for Bristol, North Somerset and South Gloucestershire CCG, says his enthusiasm for the idea began with his wish to make it easy for practices, but particularly for GPs, to gain some insight into their own prescribing and to spot the massive variation in prescribing that exists. “Wide variation strongly suggests we are wasting money, not giving patients the best care and in some cases putting patients at risk,” he points out.

With that in mind, he sees the dashboards feature, in which a practice or CCG’s prescribing data can be compared with peers across the NHS in England, as a welcome addition and says: “The dashboards give people a full range of examples of where they stand out, either in terms of potential cost savings or in terms of quality improvement, and I think that’s really helpful.”

![Figure 2. Sample data from the OpenPrescribing website, showing total opioid prescribing (as oral morphine equivalence) per 1000 patients by CCG. Chart shows the results for individual CCGs (in red) plus deciles across all CCGs in the NHS in England. From: OpenPrescribing.net, EBM DataLab, University of Oxford, 2018](image-url)
That sounds pretty impressive so far. What are their future plans for the development of data collection and analysis – is there anything else in the pipeline? “Lots,” says Dr Goldacre, “But it’s all under wraps for now!”

**User feedback**

What about feedback from users of the site? Says Dr Goldacre: “We get lots of feedback from a variety of users including CCGs, GPs, pharmacists, researchers and secondary care clinicians. We have heard from some users who say they are being encouraged to use OpenPrescribing by their CCG. The most positive feedback comes from our email alerts, which are particularly widely used among CCGs and practice pharmacists to feed back to prescribers. We sometimes receive suggestions for improvements or new features, which we incorporate into the service when possible.”

Dr Brindle adds a note of caution and says: “I think OpenPrescribing is a fantastic tool for CCGs as well as for helping and empowering GPs to understand their own prescribing and make changes in order to improve its efficiency, safety and effectiveness. But it is underused. Spreading the use of any good practice or innovation requires considerable effort and investment. You need to promote it, to show people how it can help them – to evangelise a bit.

“It’s an amazingly powerful thing – if you’re a GP in a practice it’s really interesting to put your practice name in and see that ‘Oh dear, I’m a real outlier here. Goodness me, if I just did this differently, I could save £2000–£5000 a month on my prescribing budget on one preparation alone. Why am I still an outlier on prescribing something that we probably shouldn’t be using anymore?’ It’s frustrating – most clinicians want to do the best they can for their patients and don’t want to waste money but they won’t even know they’re an outlier and can’t do anything about it unless they check. Here’s a tool that makes it dead easy for them to do that yet most of them don’t even know it exists.”

Dr Goldacre has a different view of the website’s coverage, saying: “We have a large user base, with over 50,000 unique users in 2017. Almost 1500 people are signed up to receive personalised monthly alerts, which includes 94% of all CCGs, and nearly 1000 practices. We track usage of the website, and see usage steadily increasing over time.”

**Realising cost savings**

In an article published in *BMJ Open*, Dr Goldacre and colleagues describe how cost savings can be identified by minimising the price-per-unit for each drug and dose within general practices in NHS England, writing: “We identified a theoretical maximum of £410 million of savings over 12 months.” The team has recently formally measured the impact of OpenPrescribing on prescribing in an observational study of preregistered practices. The study found that significant savings were made following use of the site’s price-per-unit tool.

Dr Goldacre says: “We have published a large number of other academic papers exploring variation in several clinical areas, explaining how we created our various tools, and analysing impacts of policy. We think that embedding research and informatics tool development together is a really efficient and effective model.”

There are other savings to be made in addition to costs, he adds: “We have heard from CCGs, which have been able to save time on Freedom of Information (FOI) requests for prescribing data, by
redirecting requesters to our site. And one of our CCG users told us that he is able to respond to ad hoc requests for data when visiting GPs. Previously he would’ve had to take the request, return to the office and send the data a few days later; now he can bring up the required data right in front of the practice staff.”

What are the main lessons they have learnt from the project in terms of its organisation and its value to its different audiences? Dr Goldacre says: “From the initiation of the project we have worked as a cross-disciplinary team of academics, clinicians and software developers, building all our software in-house. As we have grown, we continue to work closely together as a team, using agile software development to make user-friendly, informative tools by rapidly iterating prototypes.

“It is important to respond quickly to what our users require from a service like ours, and our team structure allows us this ability. Two good examples of this are: we created the low priority dashboard within a week of NHS England launching their consultation, and launched it several months before ePACT2; and, when CCGs were experiencing significant pressure on drug pricing, we responded to requests by quickly building our Drug Tariff and concessions tool and calculating the impact of price concessions in cases of drug shortages (‘no cheaper stock obtainable’) for our CCG users.

“We have encountered many challenges with obtaining and working with some NHS datasets. The main source of our prescribing data, for example, occasionally changes format, which requires our data import process to be flexible to accommodate these changes. Another example was encountered in developing our Drug Tariff and concessions tool. Data for this were distributed across various sources, and in multiple formats. This is detailed in one of our blog posts.

“We hope to work with the NHS Business Services Authority to improve access to NHS data. We are writing a paper on barriers to accessing NHS data in general, which we hope will be useful to various stakeholders and policy makers.”

Making improvements
So, what does Dr Goldacre feel remains to be done to improve the service? “We still see evidence of CCGs and practices implementing warranted changes at a slow pace, or not at all,” he says. “We are hoping to improve dissemination of new evidence to CCGs, and we have some exciting ideas coming up to help with this. We also think that more primary care and CCG staff being able to understand and use data effectively is a vital tool for expediting these changes. So, we are increasingly working on projects to increase capacity in the NHS workforce for working with data.”

What about spin-off projects – are there likely to be any similar sites? Says Dr Goldacre: “We are having various discussions with international collaborators who are keen to replicate OpenPrescribing in their country. We are always happy to collaborate with people looking to replicate the project elsewhere.”

Any final message to readers of Prescriber? “Yes!” Dr Brindle says. “I think that OpenPrescribing is underused. I’m really passionate about exposing it to people so they can see how incredibly easy and how very powerful it is so that we can realise the true savings, the true improvements in safety and the true improvements in quality that I think something like OpenPrescribing can do.”

Dr Goldacre agrees: “Please encourage your readers to visit OpenPrescribing and use it to improve care for patients. We welcome people to get in touch with us via feedback@openprescribing.net.”

And, who knows, perhaps Jim Yong Kim would be interested to read about Ben Goldacre’s and Peter Brindle’s views on managing the economics of the NHS.

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Declaration of interests
None to declare.

Joy Ogden is a freelance journalist