

# What's wrong with doctors' handwriting?

SANTOSH K. CHATURVEDI

'Bad handwriting by doctors is responsible for 7000 deaths every year.'<sup>1</sup>

The latest salvo from the Medical Council of India (MCI) insisting on legible handwriting of doctors is admirable, though much delayed.<sup>2</sup> This directive is expected to reduce the number of potential medical errors that occur due to illegible handwriting and spelling mistakes. Poor handwriting undoubtedly contributes to a high incidence of medical errors.<sup>3</sup> In Britain, medical errors were estimated to cause deaths of up to 30 000 people per year<sup>3</sup> and in the USA up to 100 000 per year.<sup>3</sup> Other authors have cautioned that illegible handwriting in prescriptions may lead to fatal consequences<sup>4</sup> and is a leading cause of medication error.<sup>5</sup> How many such errors happen in India, where English is not the primary language of doctors, is anybody's guess. How many such medical errors were due to illegible or wrongly spelt prescriptions is also not known.

This public healthcare delivery process is going to benefit many patients, chemists, other health professionals (including doctors and nurses) as well as the general public. The patient can verify details about the medications, can be well informed about the nature of medicine and its dosage, and cross-check on the internet, if interested. Writing names of medicines in capital letters ensures that doctors who have poor running handwriting can compensate for their deficiency by writing in capital letters. The importance of documentation in medical records is undisputable, but it is of relevance only if it is legible.

The joke doing the rounds since centuries is that a person with illegible handwriting will become a doctor! Sometimes doctors themselves cannot read their own handwriting, though they sheepishly admit it to be their own. The most common reason for illegible handwriting is the large number of patients to be seen, notes to be written and prescriptions given, in a short time. It should also be accepted that poor handwriting has no correlation with the medical acumen or expertise of a doctor. A prospective controlled study showed that doctors have handwriting no worse than that of a group of other healthcare personnel and much better than that of healthcare executives.<sup>6</sup> In another study across occupations, no differences in legibility were observed even after adjustment for age and education. In all, 40% of men's handwriting was illegible compared with 20% of women's.<sup>7</sup> A surprising finding of another study was that poor legibility was confined to letters of the alphabet rather than numbers. This may reflect the importance attached by doctors to legibility of drug doses,<sup>8</sup> but not names.

There are other studies with interesting results on handwriting of doctors. Many of these have been done in intensive care unit (ICU) settings.<sup>9-11</sup> Regarding prescription writing, lack of mention of drug dosage was noted more in larger wards, and illegible order and mistaken dosage were observed more in smaller wards. The rate of prescription errors in ICUs was high and it was higher in crowded wards. Illegible orders were the most common errors in prescriptions. The authors recommended that a computerized physician order should be used to decrease prescription errors.<sup>9</sup>

Some studies have looked at the magnitude of this issue. Handwriting was unreadable or difficult to read in 49.2% of documents regarding medications and orders written for nurses in a hospital in Nepal,<sup>10</sup> 17.6% in a tertiary level hospital located in a rural area of Maharashtra state,<sup>11</sup> 10% in a study in the USA<sup>5</sup> and 15% in the UK,<sup>12</sup> but the scale of illegibility was small in a Taiwan general hospital.<sup>13</sup> However, no studies or reports exist on differences in handwriting in academic or non-academic institutes, government or private hospitals, or between 'toppers' and others.

There can be many challenges in implementing this MCI directive of improving doctors' handwriting. Some radical solutions are suggested here, which may appear ludicrous. To ensure this, all candidates who apply for medical courses through common entrance test should also give a sample of written English. It should be examined by two independent examiners. As in school, there should be marks for handwriting in every professional examination. Special attention should be given during the final year MBBS examinations, and doctors and medical students who have poor handwriting must be asked to improve their handwriting. Similarly, for postgraduate training and education, handwriting should be given due consideration. Some part of training and skill building should also focus on handwriting. In most medical training and jobs in the UK and USA, competency in spoken and written English is an essential prerequisite; such requirement can also be made compulsory in India.

Attempts have been made to improve doctor's prescription writing. Educational interventions were found effective in addressing the problem in one study.<sup>12</sup> With the knowledge translation approach to improve prescription practice, there was a significant improvement in many error rates—illegible prescriptions reduced from 39.4% to 13.4% ( $p < 0.001$ ) and absent or illegible prescriber name from 38.3% to 27.0% ( $p < 0.001$ ).<sup>14</sup> It is recommended that a computerized physician order should be used to decrease prescription errors.<sup>9</sup>

In the near future, the whole process may change with digital prescriptions and digital records going directly to the pharmacy and chemists from the doctor's computer, which will take care of poor handwriting of doctors and reduce visible medical errors and mishaps. Many doctors and hospitals already use e-prescriptions, which go digitally, directly to the pharmacy. Also, technology today allows for oral prescriptions and notes, which can be transcribed, or converted to digital ones with appropriate software for speech to text transcribing. However, computerization may come with newer problems as noted by a study from Taiwan.<sup>13</sup> The issue of illegible handwriting has long been brushed under the carpet, but it can be rectified, with some effort.

*Conflicts of interest.* None declared

## REFERENCES

- 1 Anonymous. 'Fact of the matter'. *Bangalore Times* (a supplement of *The Times of India*, 5 May 2017, p. 2).
- 2 Medical Council of India. Available at [www.mciindia.org/CMS/rules-regulations/code-of-medical-ethics-regulations-2002](http://www.mciindia.org/CMS/rules-regulations/code-of-medical-ethics-regulations-2002), updated up to 8 October 2016 (accessed on 10 Jun 2017).
- 3 Sokol DK, Hettige S. Poor handwriting remains a significant problem in medicine. *J R Soc Med* 2006;**99**:645-6.

Dean, Behavioural Sciences and Department of Psychiatry,  
National Institute of Mental Health and Neurosciences, Hosur Road,  
Bengaluru 560029, Karnataka, India; [skchatur@gmail.com](mailto:skchatur@gmail.com)

- 4 Hester DO. Do you see what I see? Illegible handwriting can cause patient injuries. *J Ky Med Assoc* 2001;**99**:187.
- 5 Boehringer PA, Rylander J, Dizon DT, Peterson MW. Improving the quality of the order-writing process for inpatient orders in a teaching hospital. *Qual Manag Health Care* 2007;**16**:215–18.
- 6 Berwick DM, Winickoff DE. The truth about doctors' handwriting: A prospective study. *BMJ* 1996;**313**:1657–8.
- 7 Schneider KA, Murray CW, Shaddock RD, Meyers DG. Legibility of doctors' handwriting is as good (or bad) as everyone else's. *Qual Saf Health Care* 2006;**15**:445.
- 8 Lyons R, Payne C, McCabe M, Fielder C. Legibility of doctors' handwriting: Quantitative comparative study. *BMJ* 1998;**317**:863–4.
- 9 Khammarni M, Sharifian R, Keshtkaran A, Zand F, Barati O, Khonia E, *et al.* Prescribing errors in two ICU wards in a large teaching hospital in Iran. *Int J Risk Saf Med* 2015;**27**:169–75.
- 10 Rijal A, Gautam K, Rijal AS. Errors on a handwritten cardex: Is it time for a change? *Nepal Med Coll J* 2011;**13**:267–71.
- 11 Phalke VD, Phalke DB, Syed MM, Mishra A, Sikchi S, Kalakoti P. Prescription writing practices in a rural tertiary care hospital in Western Maharashtra, India. *Australas Med J* 2011;**4**:4–8.
- 12 Meyer TA. Improving the quality of the order-writing process for inpatient orders and outpatient prescriptions. *Am J Health Syst Pharm* 2000;**57** (Suppl 4):S18–S22.
- 13 Hsu CC, Chou CL, Chen TJ, Ho CC, Lee CY, Chou YC. Physicians failed to write flawless prescriptions when computerized physician order entry system crashed. *Clin Ther* 2015;**37**:1076–80.e1.
- 14 Rajamani A, Suen S, Phillips D, Thomson M. The SCRIPT project: A knowledge translation approach to improve prescription practice in a general intensive care unit. *Crit Care Resusc* 2011;**13**:245–51.

## FORM IV

(See Rule 8)

- |   |   |
|---|---|
| 1. Place of publication   | All India Institute of Medical Sciences<br>New Delhi 110029                                     |
| 2. Periodicity  | Bi-monthly  |
| 3. Printer's name<br>(Whether citizen of India)<br>Address  | Dr Peush Sahni<br>Indian citizen<br>All India Institute of Medical Sciences<br>New Delhi 110029 |
| 4. Publisher's name<br>(Whether citizen of India)<br>Address  | Dr Peush Sahni<br>Indian citizen<br>All India Institute of Medical Sciences<br>New Delhi 110029 |
| 5. Editor's name<br>(Whether citizen of India)<br>Address   | Dr Peush Sahni<br>Indian citizen<br>All India Institute of Medical Sciences<br>New Delhi 110029 |
| 6. Names and addresses of individuals<br>who own the newspaper and partners<br>or shareholders holding more than one<br>per cent of the total capital | All India Institute of Medical Sciences<br>New Delhi 110029                                     |

I, Dr PEUSH SAHNI, hereby declare that the particulars given above are true to the best of my knowledge and belief

1 March 2018

Sd-  
Signature of publisher