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## Are contactless cards really the safest form of payment? The Infection Risk Posed by Card Readers and Other Public Transfer Points

In a recent article by John Creedy, providing his views about the small increase in the UK contactless payment limit, he proposed that this should be increased to £200. He justified this by explaining that smart payment cards could well be a passive surface transport mechanism, called a fomite, for COVID-19. This would be the case when, for example, such cards were inserted into an ATM, into a card reader or even when used in a tapped transaction in so-called contactless operation. Contamination of the card - and of the card reader - could result in a chain reaction following a virus-infected cardholder sneezing, thus contaminating the hand, then the card and lastly the card reader. All subsequent users could then be infected following use in these payment modes. I favour a £100 limit for contactless card transactions, but it seems that in the UK it is being raised from £30 to just £45.

For a number of weeks, card-issuing banks have been extolling contactless payment. Well, they would, wouldn't they? For them, card-based transactions are revenue-generating, whilst payment with notes and coins are certainly not. What better way to ramp up the use of contactless than to portray it as a means of lowering the risk of infection? They reinforced the benefits of such contactless transactions by raising the tap limit from £30 to £45. This tiny, ineffectual increase is totally insufficient, the second-from-bottom percentage uplift in the recent list of some 30 countries doing the same thing, didn't look so impressive against an average Tesco grocery shopping total of about £100. This figure will surely increase further, as food shopping trips become less frequent. Most retailers with low average basket prices are closed anyway, and the supermarkets have become the main and often sole shopping experience. By extending a higher limit for contactless card readers, even if only for supermarkets and perhaps filling stations, the transmission risk can certainly be reduced, especially if these devices have a clear warning for users to avoid touching the reader with a card. This way you can avoid the risk yourself and maybe even prevent contamination if you happen to be infected, maybe without symptoms.

It is true that door handles and cash can act as fomites, but in such cases it is a relatively limited number of individuals who handle the device who are at risk. With payment card readers, passport scanners and public keypads, contamination is almost guaranteed by every further user of that device, which then acts as focal points for guaranteed risk of contamination to all subsequent users. It is not easy to disinfect the internals of card readers in particular, which is why contactless transactions can help to reduce this risk.

And so contactless is a Good Thing: fast, clean, easy, hygienic and risk-free. But is it really? Well, not necessarily.

When one considers so-called "contactless" payments, and applies the known characteristics of COVID-19's infectivity then, at least in viral terms, they are far from contactless at all. The majority of people touch the reader with the finger under the card, or the card itself touches the reader. The chain reaction starts. The infected person contaminates the card, which contaminates the reader. Or conversely, a contaminated reader contaminates a card, which infects a person and then sits in a wallet or purse ready to start the contamination process all over again. When the tap limit - by value or number of consecutive taps - is exceeded, then the card must be inserted into the reader - contaminating it or being contaminated by it - and round we go again. The situation is worsened in this case, as the person also has to touch at least 5 keys on the reader keyboard. And lastly of course there's the passing across of the receipt.

The original risks associated with fomite transfer arose for Mr. Creedy when he realised that any infected person passing through Passport Control nowadays either hands their passport to a Passport Immigration Officer, who opens it up and places it face down onto a scanner device, or places it into a self-service biometric reading machine. At that point any contamination from an infected owner is immediately transferred to the scanner plate. The next people undertaking the same actions almost guarantee that all subsequent passports are contaminated by the scanner device. This fomite transfer pathway could be responsible for large numbers of transferred infections, and may partly explain the apparently inexplicable pattern of early infections occurring around the UK back in January and February.

Then there is the attack on cash. The risk of infection by this means, in either direction, is no worse than touching any surface at all - something we all do many times each day. Cash is used less frequently and only by the following person, rather than huge numbers of following people.

I accept that tapping probably carries a slightly lower risk of infection than card insertion and PIN entry, but the effect on overall infection rates will only be measurably less if that limit is raised to a realistic level. Perhaps £200 is too frightening for the card issuers to cope with, but £100 - if only temporary, would be perfectly reasonable. I do note, with slight derision, that some commentators even consider this to be elitist, and unfair to less well-off people. Spending to the max is not a legal obligation. The risk of COVID-9 transmission is a far greater risk to life than occasional fraudulent use of cards.

Perhaps we shall witness a faster-than-ever migration to the use of mobile devices for payment. Equipped with built-in biometric reading and verifying capability, and with space for several internally-held virtual cards to be activated, this could really give contactless a good name. The idea of fingerprint biometric readers in the domain of merchants is most certainly over.