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Thampi, N.; Longtin, Y.; Peters, Alexandra; Pittet, Didier; Overy, K.

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Letter to the Editor

It's in our hands: a rapid, international initiative to translate a hand hygiene song during the COVID-19 pandemic



Sir,

The novel coronavirus disease 2019 (COVID-19) continues to affect the global community deeply and rapidly, with more than 200 countries impacted at the time of writing (May 2nd, 2020). In order to manage the extent of this pandemic, there is a need to develop, disseminate, and implement infection prevention and control strategies in healthcare settings and in the community. Early on in the outbreak, there were general recommendations to frequently wash hands to reduce the spread of infection. With the current, relentless global scale of COVID-19, international compliance with handwashing frequency and technique is more important than ever.

A prominent strategy to improve hand hygiene, developed by the World Health Organization (WHO), includes an effective six-step handwashing technique which has had broad uptake through the use of a multi-modal approach; however, encouraging consistent compliance can be challenging [1]. In addition to needing to remember all six steps of the technique and needing to wash hands for the required duration of time, there may be a lack of awareness regarding the importance of handwashing technique on reducing the microbial burden on hands. This lack of awareness may not be surprising, as most hand hygiene promotion campaigns focus on indications for action ('when to clean hands') rather than on technique ('how to clean hands') [2]. Thus, continuing to promote correct handwashing technique is currently of utmost importance to the world population, especially given the disproportionate burden of COVID-19 on older adults, and emerging evidence of asymptomatic shedding [3,4].







In order to assist children with remembering the effective six-step technique, we recently published a musical mnemonic to the tune of the well-known nursery rhyme *Frère Jacques*, or *Brother John* [2,5]. This memory aid reinforces inclusion of all six handwashing steps using self-instruction, via engaging with the familiar melody and singing (or imagining singing) the lyrics (Figure 1A). In the context of the evolving COVID-19 pandemic, the near-ubiquitous melody of *Brother John* provided an opportunity for international, interdisciplinary collaboration to translate and rapidly disseminate the musical mnemonic

globally. On March 19th, drawing on our combined network of music neuroscience researchers, music education specialists, and healthcare professionals, we invited approximately 40 international colleagues to create a new version of the handwashing song that (a) included all six WHO handwashing steps; (b) worked musically in the new language; and (c) had been checked by a healthcare professional for accuracy. Each translator was also invited to submit an audio or video file of the translated song. We received an overwhelmingly positive and creative response. Within one week, 26 songs meeting the criteria were gathered. Alongside the original English and French versions, this led to 28 versions for immediate dissemination (Figure 1B). The songs cover languages from all five continents and range from very close (e.g. Punjabi) to creative (e.g. Czech) translations. All translators gave informed consent for their versions to be disseminated, as a starting point and inspiration for further development into other languages.

Brother John is an ideal tune to use in this context: it is widely known across cultures; the melody involves very simple, repeating patterns; the vocal range centres around a small interval of a sixth (e.g. middle C to A), which is easy to sing for children; and the duration, when sung at a steady tempo, is between 20 and 25 s. Singing is a highly sequential, structured activity and has been used throughout history to remember text or coordinate movement, from ballads and religious scriptures to work songs and children's action songs. Experimentally, music has been shown to facilitate verbal and motor learning in a variety of contexts, likely using neural resources shared between music, language and motor networks [6–8]. In practice, we have observed that, once the handwashing song becomes highly familiar through repetition and rehearsal, a missed step is immediately noticed, leading to important self-correcting behaviour.

A clear advantage of this six-step handwashing song is that it highlights the importance of correct technique, in addition to the recommended 20 s duration (such as singing *Happy birthday* twice – another popular approach). A demonstration, prior to introducing the song, will ensure full understanding of each step. In launching these translated songs during a pandemic that underlines our global interconnectedness, and to highlight 2020 World Hand Hygiene Day on May 5th, we have made these songs available at www.CleanHandsSaveLives.org/handwashing-song/, hoping that this mnemonic will inspire individuals to take matters into their own hands and reduce their risk of acquiring or spreading COVID-19. Music is known to have the capacity to entertain, bring joy, and be a powerful, positive shared experience; the 28 languages included here allow access to this musical mnemonic to more than half of the world's population in their native language.

(A)

WHO handwashing technique	English mnemonics	Original <i>Brother John</i> lyrics
	Rub hands palm to palm	"Scrub the palms" "Are you sleeping?" d, r, m, d
	Palm to palm with fingers interlaced	"Between the fingers" "Are you sleeping?" d, r, m, d
	Right palm over left dorsum with interlaced fingers and vice versa	"Wash the back, Wash the back" "Brother John, Brother John" m, f, s m, f, s
	Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa	"Twirl the tips around" "Morning bells are ringing" s, l, s, f, m, d
	Back of fingers to opposing palms with fingers interlocked	"Scrub them upside-down" "Morning bells are ringing" s, l, s, f, m, d
	Rotational rubbing of left thumb clasped in right palm and vice versa	"Thumb attack! Thumb attack!" "Ding-ding-dong! Ding-ding-dong!" d, s _l , d d, s _l , d

(B)

Arabic (Modern Standard)	French Français	Japanese 日本語	Punjabi ਪੰਜਾਬੀ (Pakistani)
فرق يدك ما بين الأصابع اغسل ظهر الكف، اغسل ظهر الكف، الأطراف اغسل الجنبين لا تنسى الإبهام لا تنسى الإبهام	Frotte les mains Entre les doigts Sur le dos, sur le dos Tourbillonne les bouts A l'envers, partout Attaque les pouces! Attaque les pouces!	てのひら ごしごし ゆびの あいだ ごしごし せなかもね せなかもね ゆびさき くるくる つめも きれいに おやゆびも わずれずに	Hathailah dhoi Unglion key dimyaan Pichla hissah dhoi, pichla hissah dhoi Ungliyah gummiyah Inneh ulta saaf kerein Angutah attack, angutah attack
Czech Čeština	Gaelic Gàidhlig (Scotland)	Korean 한국어	Russian Русский язык
Dlaně mydlit Mezi prsty Mydlí hřbet, mydlí hřbet Prsty vaří kašičku Vydřni je trošičku Palce též, postav věž	Nigh do bhoisean Eadar na meòir Cùl gach làimhe Cuimhnich bàrr nan corragan Glan bho bhun gu bàrr iad Dèan an òrdag chli, dèan an òrdag cheart	손바닥을 닦자 손가락 사이도 손등을 씻자, 손등을 씻자 손끝도 비비고 아래위로 문지르고 엄지손 씻자, 엄지손 씻자	Моем руки между пальцами С двух сторон, с двух сторон Трем концы пальцев их затем сцепляем Про большой, не забудь
Danish Dansk	German Deutsch	Lithuanian Lietuvių Kalba	Spanish Español (Mexico)
Vaske hænder Mellem fingre For og bag, grub og skrub Fingrene roteres Hænderne masseres Tommelføt, gnides godt	Wasch die Handflächen, Zwischen den Fingern, Waschen den Handrücken, waschen den Handrücken Fingerkuppen kreisen, Schrubb' sie rauf und runter, Daumen auch, Daumen auch	Trink savo delnus Trink tarp pirštų Ir rankos viršų, ir rankos viršų Pirštų galą pliauk Sukabius plauki Taip pat ir nykščius, taip pat ir nykščius	Tállate las palmas Entre los dedos Lava por detrás, lava por detrás Circula las puntas Talla arriba abajo Limpia tu pulgar, limpia tu pulgar
Dutch Nederlands	Greek ελληνικά *	Malay Bahasa Melayu	Swedish Svenska
Wrijf in je handen Tussen je vingers Bovenop, bovenop Rondje met je topjes Haken met je handen Pak je duim, pak je duim	Τρίψτε τις παλάμες μεταξύ τους κι ανάμεσα στα δάχτυλα (τριψτε) τη ράχη στα χεράκια και στα δαχτυλάκια δεξί, ζεστό αντίχειρα κι όλα τα νυχάκια	Gosok tangan Gosok jari Belakang tangan, belakang tangan Gosok hujung hujung Gosok celah celah Jangan lupa ibu jari	Skrubba händerna O mellan fingrarna Tvätta handryggen, andra handryggen Tvätta fingertopparna Gnugga gnugga händerna Tummarna med, tummarna med
English	Hindi हिन्दी	Mandarin 普通话 / 汉语 *	Taiwanese Tâi-gí
Scrub your palms Between the fingers Wash the back, wash the back Twirl the tips around Scrub them upside-down Thumb attack, thumb attack	Haatheli ko ragado Unglion ke beech mein Haath ke upar, sabun ko malo Unglion ke nakh, Upar, niche ragado Angootha ko ragado, charon aur	手心搓搓 手臂搓搓 手指缝，搓一搓 指尖合拢搓搓 关节相扣搓搓 大拇指，别放过	Sé tshü-té, Sé tshü-phâng So tshü-puân, so tshü-puân Tsing-thau-á-buê lut-lut-leh Tsing-thau-á-buê lut-lut-leh Tua-thau-bô, löng-tsóng sé
Estonian Eesti	Hungarian Magyar	Polish Polski	Welsh Cymraeg
Peopesad puhtaks Sõrmevahed puhtaks Pealtpoolt ka, teine käsi ka Hõõru sõrmeotsi Ülesse ja alla Müdi oma poialt, müdi oma poialt	Tenyeredet Ujjaidat Kézfejed, súroljad! Csipi-csipi körbe Sika-sika föl-le Nagyujjam, elkaplak!	Namydł wnetrze dłoni Palce między palce Potem wierzch, potem wierzch Umij wnetrze dłoni Zrób z paluszków haki Zakręć kciuk, zakręć kciuk	Sgwio'r dwylo Rhwyg y bysedd Golchi'r cefn, golchi'r cefn Troelli blaen y bysedd Troï nhw ar ben i lawr Bawd mawr glân, bawd mawr glân
Farsi / Persian فارسی	Italian Italiano	Portuguese Português (Brazil)	Yoruba Èdè Yorùbá (Nigeria) *
بمال دست ها تو به هم لا به لا ی انگشت ها پشتش را بشور، پشتش را بشور خم کن نوک هانش را بشور قلاب کن بسا سبوسون قلم این شست ، هم این شست	Prima i palmi E fra le dita Poi il dorso, e l'altro dorso Punte gira gira Tutti in amicizia Pollici, finiti!	Esfrega as palmas E entre os dedos Lava atrás, lava atrás Gira as pontinhas E de ponta-cabeça Pega o dedão, pega o dedão	Fo àtélé owó re Fo èyin owó re Fo ika pélu owó, Sù s'ókè s'ódò Fo àtápákò re Ro owó àti ika pò Yió sí mó, Yió sí mó

Figure 1. World Health Organization (WHO) six-step handwashing technique (an adaption of an original work, 'How to handwash'; 2009; https://www.who.int/gpsc/5may/How_To_HandWash_Poster.pdf) and handwashing song lyrics, set to the tune of *Brother John*. (A) Visual handwashing aid, lyrics, and musical notes for each step. (B) The handwashing song in twenty-eight languages. d, r, m, f, s, l = do, re, mi, fa, so, la (s_l = so below d). *Handwashing steps are sung in a different order from the original English version.

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Conflict of interest statement

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N. Thampi^{a,*}

Y. Longtin^b

A. Peters^c

D. Pittet^c

K. Overy^d

^aDepartment of Pediatrics, Children's Hospital of Eastern Ontario, Ottawa, Canada

^bDepartment of Medicine, Jewish General Hospital, Montreal, Canada

^cWorld Health Organization (WHO) Collaborating Center on Patient Safety, University of Geneva Hospitals and Faculty of Medicine, Geneva, Switzerland

^dReid School of Music, ECA, University of Edinburgh, Edinburgh, UK

* Corresponding author. Address: Division of Infectious Diseases, Children's Hospital of Eastern Ontario, 401 Smyth Road, Ottawa, Ontario, K1H 8L1, Canada. Tel.: +1 6137377600.
E-mail address: nthampi@cheo.on.ca (N. Thampi)

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