

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

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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 2, 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 both healthcare settings and 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 and has led to broad uptake through the use of a multimodal 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 can 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 19<sup>th</sup> March, 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.



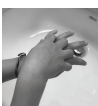


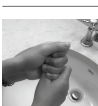
*Brother John* is an ideal tune to use in this context: it is widely known across cultures; the melody involves very simple, repeating patterns; the vocal range centres around a small interval of a sixth (e.g. middle C to A), which is easy to sing even by non-musically trained individuals; and the duration, when sung at a steady tempo, is between 20 and 25 seconds. 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 behavior.

A clear advantage of this six-step handwashing song is that it highlights the importance of correct technique, in addition to the recommended 20-second 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 5<sup>th</sup> May, we have made these songs available at [www.CleanHandsSaveLives.org/hand-washing-song/](http://www.CleanHandsSaveLives.org/hand-washing-song/), hoping 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.

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Figure 1: WHO six-step handwashing technique<sup>1</sup> and handwashing song lyrics, set to the tune of *Brother John*. (A) visual handwashing aid, lyrics and musical notes for each step. Figure (B) 28 translations of the handwashing song

A			B				
WHO handwashing technique	English mnemonics	Original <i>Brother John</i> lyrics	Arabic (Modern Standard)	French Français	Japanese 日本語	Punjabi ڳالهائ (Pakistan)	
 Rub hands palm to palm	<b>"Scrub the palms"</b>	<i>"Are you sleeping?"</i> d, r, m, d	فرك يدك ما بين الاصابع اغسل ظهر الكف اغسل اطرافه اغسل الجفون لا تنسى الاصابع	Frotte les mains Entre les doigts Sur le dos, sur le dos Tourbillonne les bouts A l'envers, partout Attaque les poches! Attaque les poches!	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 ゆびをき くるくる つめを まれいに おやゆびも わずれずに	Hathallah d'hoey Unglion key dirmyan Pichia heshah d'hoey, pichia heshah d'hoey Ungliyah gummyeh Imehi utta saal kamañ Angulah attack, angulah attack	
 Palm to palm with fingers interlaced	<b>"Between the fingers"</b>	<i>"Are you sleeping?"</i> d, r, m, d	Mačiči myditi Mačiči prsty Myditi hřbet, myditi hřbet Prsty wřli kařičku Vydřni je trořičku Palce wřz, postav wřz	Gaelic Gàidhlig (Scotland) Nigh do bhoisean Eadar na maol Cùl gach làimhe, cùl gach làimhe Cùimhnich bonn nan corragan Glan bhò bhun gu bàrr iad Dèan an òrdag dhì, dèan an òrdag dhì	Korean 한국어 손바닥을 닿자 손가락 사이도 손등을 씻자, 손등을 씻자 손끝도 비치고 아래위로 문지르고 엄지손 씻자, 엄지손 씻자	Russian Русский язык Моemy руки Между пальцами С двух сторон, с двух сторон Трих концы пальцев их затеи сцепляем Пло болючей, не забывая	
 Right palm over left dorsum with interlaced fingers and vice versa	<b>"Wash the back, Wash the back"</b>	<i>"Brother John, Brother John"</i> m, f, s m, f, s	Váske hǎnder Mellem fingre For og bag, grub og skrub Fingrene roteres Hǎndene masseres Tommetolt, grides godt	German Deutsch Wasch die Handflǎchen, Zwischen den Fingern, Wasch den Handrücken, wasch den Handrücken Fingerruppen kreieren, Schubb' sie rauf und runter, Daumen auch, Daumen auch	Lithuanian Lietuvių Kalba Trink savo delnus Trink tarp pirštų Ir rankos viršų, ir rankos viršų Pirštų galų plauki Sukulimus plauki Taip pat ir nykščius, taip pat ir nykščius	Spanish Español (Mexico) Tállate las palmas Entre los dedos Lava por detrás, lava por detrás Circula las puntas Talla arriba abajo Limpia tu pulgar, limpia tu pulgar	
 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa	<b>"Twirl the tips around"</b>	<i>"Morning bells are ringing"</i> s, l, s, f, m, d	Wrijf in je handen Tussen je vingers Bovenop, bovenop Ronde met je topjes Haken met je handen Pak je dum, pak je dum	Dutch Nederlands Wrijf in je handen Tussen je vingers Bovenop, bovenop Ronde met je topjes Haken met je handen Pak je dum, pak je dum	Greek Ελληνικά * Τρίψτε τις μοδάτες μεταξύ τους κι ονδύστε στο δάδυλο (πίσω) τη στόμη στο χροτόκο και στο δάδυλοκιό δέξ, ύπερό οντιέγο κι όλα το υογύεγο	Malay Bahasa Melayu Gosok tangan Gosok jari Belakang tangan, belakang tangan Gosok hujung hujung Gosok celah celah Jangan lupa bu jari	Swedish Svenska Skrubba hǎnderna O mellan fingrarna Tvǎtt handryggen, andra handryggen Tvǎtta fingertopparna Gnugga gnugga hǎnderna Tumma med, tumma med
 Back of fingers to opposing palms with fingers interlocked	<b>"Scrub them upside-down"</b>	<i>"Morning bells are ringing"</i> s, l, s, f, m, d	Haatheli ko ragado Unglion ke beech mein Haath ke upar, sabun ko malo Unglion ke nakh, Upar, niche ragado Angootha ko ragado, charon ar	Hindi हिन्दी Haatheli ko ragado Unglion ke beech mein Haath ke upar, sabun ko malo Unglion ke nakh, Upar, niche ragado Angootha ko ragado, charon ar	Mandarin 普通话 / 汉语 * 手心搓搓 手背搓搓 手指缝，搓一搓 指尖合拢搓搓 大拇指，别放过	Taiwanese Tǎi-gí Sǎ tshǎu-lá. Sǎ tshǎu-phǎng So tshǎu-puǎnn, so tshǎu-puǎnn Tshǎu-tshǎu-á-buǎi hǎi-lǎi-lǎi Tshǎu-tshǎu-á-buǎi hǎi-lǎi-lǎi Tuǎ-tshǎu-bó, lǎng-tǎng-sǎ	
 Rotational rubbing of left thumb clasped in right palm and vice versa	<b>"Thumb attack! Thumb attack!"</b>	<i>"Ding-ding-dong! Ding-ding-dong!"</i> d, s <sub>1</sub> , d d, s <sub>1</sub> , d	Peepsaad puhtaks Sõrmehaiged puhtaks Pealtpoolt ka, teine küsi ka Hõõru sõrmeotsi Ühesse ja alla Muži oma põlleti, muži oma põlleti	Estonian Eesti keel Peepsaad puhtaks Sõrmehaiged puhtaks Pealtpoolt ka, teine küsi ka Hõõru sõrmeotsi Ühesse ja alla Muži oma põlleti, muži oma põlleti	Hungarian Magyar Tenyeredet Ujjaidat Kézfejed, sǎrfejed! Umyj wneřze dloni Zrób z paluszków hǎki Zakręć kciuk, zakręć kciuk	Polish Polski Namydł wneřze dloni Palce między palce Polem wierzch, polem wierzch Umyj wneřze dloni Zrób z paluszków hǎki Zakręć kciuk, zakręć kciuk	Welsh Cymraeg Sgwio'r dwylo Rhwng y bysedd Gochi'r cefn, gochi'r cefn Troelli blaen y bysedd Tro rhw ar ben i lawr Bawd mawr glān, bawd mawr glān
			Fārsī / Persian فارسی بمال دست ها توبه هم لا به لا ای انگشت ها بشستن را بشستن را بشور خبر کن بوبق هاتش را بشور قارن کن بسا بشستن هم این بشستن ، هم اون بشستن	Italian Italiano Prima i palmi E fra le dita Poi il dorso, e l'altro dorso Punte gira gira Tutti in amicizia Pollici, finiti!	Portuguese Português (Brazil) Esfrega as palmas E entre os dedos Lava atrás, lava atrás Gira as pontinhas E de ponta-cabeça Pega o dedão, pega o dedão	Yoruba Èdè Yorùbá (Nigeria) * Fò àtélé owó re Fò éyin owó re Fò lka péwí owó, Sù s'ókè s'òdò Fò àtápàkò re Fò owó àlù lù pé Yíá sí mó, Yíá sí mó	

<sup>1</sup> This is an adaption of an original work "How to Handwash". Geneva: World Health Organization (WHO); 2009. [https://www.who.int/gpsc/5may/How\\_To\\_HandWash\\_Poster.pdf](https://www.who.int/gpsc/5may/How_To_HandWash_Poster.pdf)

<sup>2</sup> d, r, m, f, s, l: do, re, mi, fa, sol, la (all above middle C) s<sub>1</sub>: sol (below middle C)

\* Handwashing steps are sung in a different order from the original English version