

Supplementary Material

Recommendations for Deep Brain Stimulation Device Management During a Pandemic

Supplementary Table 1. Practical guide for remote DBS care using patient programmers

	Medtronic Activa	Abbott Infinity	Boston Scientific Vercise Gevia (new)	Boston Scientific Vercise (old)
Patient programmer activation and connection	Requires two AAA batteries. Hold the attached antenna or programmer itself over the IPG, and press white round button to activate programmer; press orange check button to establish connection (may need to reposition and press orange check button until connected).	Needs to be charged by plugging into wall outlet. Turn on patient controller by pressing the button on the upper right side. Tap SJM Patient Controller app and select IPG to connect.	Needs to be charged by plugging into wall outlet. Wake up the remote by pressing the unlock button on the right side of the remote for 3 seconds.	Requires three AAA batteries. Wake up the remote by pressing P button for 3 seconds.
Therapy on/off check	Main screen will show ON or IPG with lightning bolt	Main screen with show green ON button	Main screen with show ON	On/off button (bottom round button) needs to be pressed to display stimulator status (NB. this will turn IPG off if it was on so need to press again to turn back on)
Battery replacement notifications	ERI (Elective Replacement Indicator) appears when IPG is at 2.6V, and EOS (End of Service) will occur after 2-3 months when battery voltage drops to 2.2V.	ERI (yellow triangle) appears when IPG is at 2.73V. There is no EOS voltage and IPG will continue to deliver energy until depleted after 3-6 months (see longevity calculator in Clinician Manual)	N/A (majority of Boston Scientific systems are rechargeable)	N/A (majority of Boston Scientific systems are rechargeable)
Battery status check	Navigate rectangle to the second row (battery icon) by pressing down arrow button; press the right arrow to see battery charge. This can be performed even if the initial screen shows ERI icon (press any arrow to exit ERI screen).	Once Patient Controller App is open, click on the “i” icon in upper right corner. At the bottom of the screen, select “Generator Battery”. If there is a green check, battery status is fine; yellow triangle means ERI.	The main screen will show 1-3 green bars indicating the amount of battery charge.	The main screen will show 1-3 bars indicating the amount of battery charge.

<p>System electrical integrity (impedance) check</p>	<p>Turn on the patient programmer, hold down the two black buttons, a screen will show “LCC”. Hold the programmer over the IPG and press the orange check button. It will show the number of contacts that do not have an open circuit (e.g., 4 OK). It will not specify which contact is out of range (active or unused) and will not detect circuit shorts. This procedure is considered off label.</p>	<p>An indirect way of checking system integrity is to put the IPG temporarily into MRI mode. Tap Mode button then select MRI Mode. If there are problems with impedance, the screen will say ‘MRI is not advised’. This does not specify if the problem is with active or unused contacts and may report problems that do not affect device function (e.g., any impedance over 3000Ω). After putting the device in MRI mode, need to click “Exit MRI Mode” and then click the Back arrow on the top left hand corner of the screen and click the red button that says “Therapy is OFF”; this will turn therapy back on and the button will turn green.</p>	<p>Press right directional button to enter Main Menu; go to System Settings by pressing down arrow 3 times and then pressing middle white button; Choose Clinician Menu, the password is ‘abcd’; Choose Impedances and press white button to choose enter; Green indicates normal impedances and red indicates abnormal impedances (short or break); pressing the down arrow will show detailed impedances (the average of all monopolar and bipolar measures).</p>	<p>Press man button and P at the same time for 1 second; press down arrow key until CP (clinician mode) is highlighted; press P, then scroll down until Impedances is highlighted and then P; then it will say measure and then press P; the password is ‘abcd’; black icon means impedance is within range, open in abnormal; pressing the down arrow key will display impedance measures.</p>
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Supplementary Figure 1. Detailed workflow algorithm for management of DBS-related issues in a pandemic.

