

## Appendix 1

Supplemental Table 1: Canadian Beta-Blockers, Year entered, Numbers of Makers and Shortages

Ingredient	Start Year*	Marketer Firms*	Cancelled Firms*	Shortages (Mar 2017-Dec 2018)**
Acebutolol	1986	14	11	33 (10 D/C)
Atenolol	1988	38	16	66 (10 D/C)
Bisoprolol	2000	13	5	12 (4 D/C)
Carvedilol	1996	16	8	20 (4 D/C)
Labetalol	1984	7	2	10
Metoprolol	1977	32	14	35 (9 D/C)
Nadolol	1979	6	6	0
Nebivolol	2013	1	0	1
Pindolol	1978	14	9	0
Propranolol	1974	16	11	12 (1 D/C)
Sotalol	1984	20	13	20 (4 D/C)
Timolol	1977	6	5	19 (2 DC) (all ophthalmics)

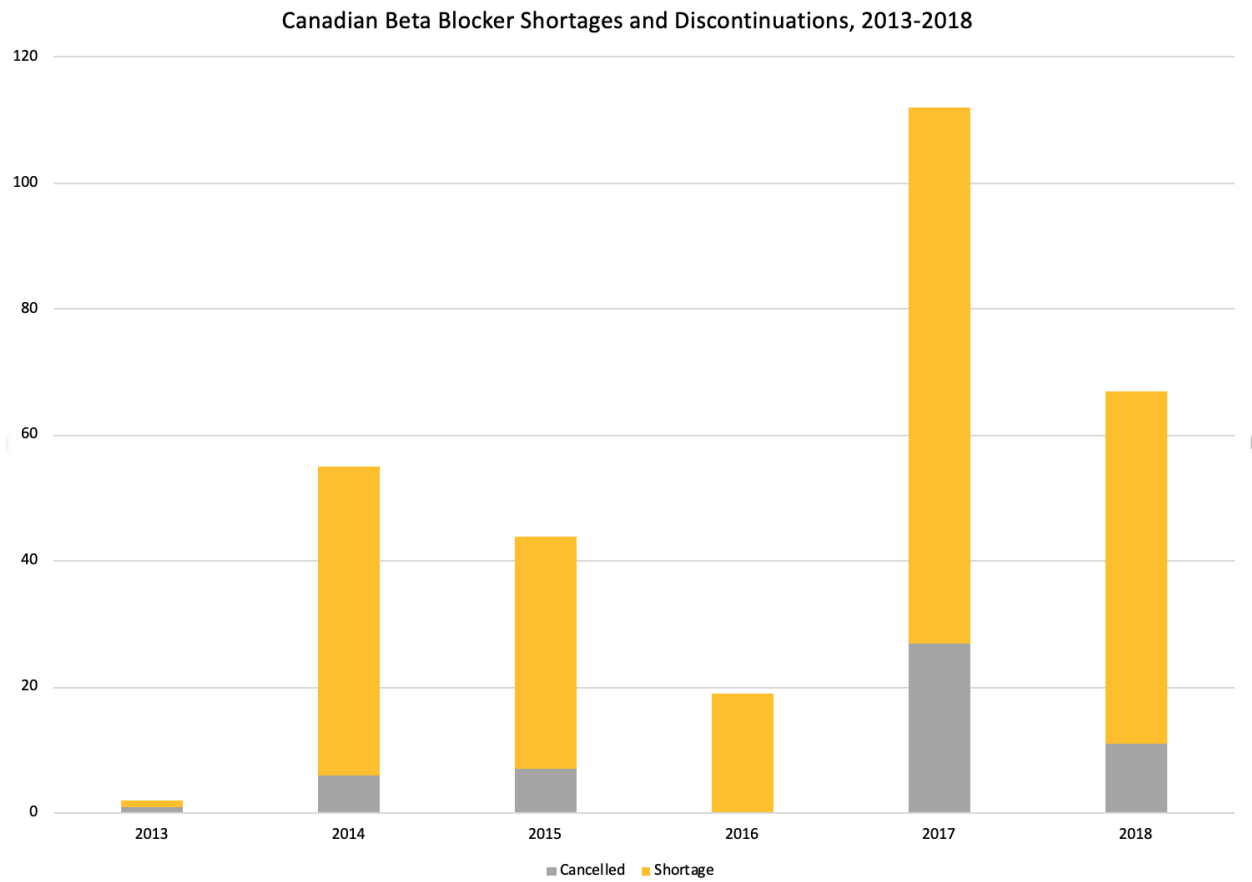
D/C = discontinuations

Sources: \*Health Canada, *Drug Product Database*, October 2018 <https://www.canada.ca/en/health-canada/services/drugs-health-products/drug-products/drug-product-database.html>

\*\*Drug Shortages Canada, <https://www.drugshortagescanada.ca>

---

## Supplemental Figure 1



Sources: Drug Shortages Canada <https://www.drugshortagescanada.ca> and the former site [www.drugshortages.ca](http://www.drugshortages.ca).

Supplemental Table 2: Beta-Blockers in Hypertension Guidelines Canada and the United States, 1984-2018

Year	Canada	United States
1984	A <sup>1</sup>	
1989	A <sup>2</sup>	
1993	B <sup>3,4</sup>	
1998		A <sup>5</sup>
1999	C <sup>6</sup>	
2001	C <sup>7</sup>	
2003		C+; E <sup>8</sup>
2004	C; E <sup>9</sup>	
2010	C <sup>10</sup>	
2013	C; E <sup>11</sup>	
2014		D <sup>12</sup>
2018	C; E <sup>13</sup>	

**KEY**

- A first line all ages
- B first line <60 yrs; second line >60 yrs
- C first line <60 yrs; not recommended >60 yrs
- C+ second line all ages, but controversial >65 yrs
- D not recommended for any age
- E for coronary artery disease, age unspecified

<sup>1</sup> AG Logan. CMAJ 1984 Nov 1;131(9):1053–7.

<sup>2</sup> MG Myers et al. CMAJ 1989 May 15;140(10):1141-6.

<sup>3</sup> RI Ogilvie et al. CMAJ 1993 Sep 1;149(5):575–84.

<sup>4</sup> RA Reeves et al. CMAJ 1993 Sep 15;149(6):815–20.

<sup>5</sup> NM Kaplan, JNC6, Am Fam Physician 1998 Oct 15;58(6):1323-30

<sup>6</sup> RD Feldman et al. CMAJ 1999 Dec 14;161(12):S18–S22.

<sup>7</sup> FA McAlister et al. CMAJ 2001 Feb 20;164(4):517–22.

<sup>8</sup> AV Chobanian et al. JNC7, 2003 May 21;289(19):2560 yrs-72. Epub 2003 May 14.

<sup>9</sup> NA Khan et al, Can J Cardiol 2004 Jan;20(1):41-54.

<sup>10</sup> DG Hackam et al. Can J Cardiol 2010 May;26(5):249–58.

<sup>11</sup> DG Hackam et al. Can J Cardiol 2013 May;29(5):528-42.

<sup>12</sup> PA James et al. JNC8, JAMA 2014;311(5):507-20.

<sup>13</sup> KA Nerenberg et al. Can J Cardiol 2018 May;34(5):505–25.