

Appendix I

The patient experience-related Twitter data was extracted using a paid GNIP license. We used a set of keyword classes and rules to obtain the Twitter data for the study. Keywords were divided into the classes to correctly form the rules. A list of classes along with the corresponding set of keywords, and example rules are shown in the Table S1.1. Note that keyword classes represent different subject of patient experience but may contain common keywords.

A rule may include multiple keyword classes appended using logical operators. For example, a rule for extracting patient experience data related to hospital staff providing hospital care would include keywords from *Hospital Staff* and *Care Condition* classes. Similarly, a rule to extract hospital bills and insurance related patient experience data would look like '*Hospital Bills* AND (*Medical Facility* OR *Hospital Staff* OR *Medicine*)'. We used total fifteen rules to obtain the Twitter data.

Table S1.1. Keyword classes, keywords, and example rules that were used to extract the patient experience Twitter data.

Keyword Classes	
Class	Keywords
<i>Medical Facility</i>	Hospital, clinic, urgent care, emergency room, ED
<i>Hospital Staff</i>	Nurse, doctor, medical professional, registered nurse, dr, patient rep
<i>Treatment</i>	Treatment, treat, assist, care
<i>Common Procedures</i>	Surgery, IV, blood
<i>Emergency Care</i>	ICU, NICU, urgent care, emergency room, triage, ED
<i>Hospital Bills</i>	bill, doctor bill, health insurance
<i>Care Condition</i>	Monitor, heal, recover, care, cure, dying, dead, sicker, sick, ill, illness, condition
<i>Hospital Visit</i>	Hospital stay, hospital visit, emergency room visit
<i>Pain</i>	Pain
<i>Medicine</i>	Medicine
<i>Patient Experience</i>	Hospital experience, patient experience
<i>Other</i>	Health, patient, trauma, surgery, critical, procedure, symptoms
Example Rules	
1. <i>Medical Facility</i> AND <i>Hospital Staff</i>	
2. <i>Hospital Staff</i> AND <i>Care Condition</i>	
3. <i>Hospital Visit</i> AND <i>Hospital Staff</i>	
4. <i>Hospital Bills</i> AND (<i>Medical Facility</i> OR <i>Hospital Staff</i> OR <i>Medicine</i>)	
5. <i>Medical Facility</i> AND <i>Common Procedures</i>	