

**Table S2** Summary of included quantitative studies

First author (year)	JB1 score	Period studied	Setting	Participant information	Sample size	Tool	Prevalence of PIPs
<b>Cross-sectional Studies</b>							
Bradley (2012) <sup>25</sup>	7	2009-2010	Prescribing database, UK	Older adults (≥70y)	166,108	STOPP/START (version 1)	32.2%
Vatcharavongvan (2019) <sup>26</sup>	8	2016-2017	Primary care unit, Thailand	Older adults (>65y)	400	Beers criteria (version 2015), STOPP (version 2), Winit-Watjana	75.3%
Fialová (2005) <sup>27</sup>	7	2000-2003	AdHOC data set, Czech Republic, Denmark, Finland, Iceland, Italy, the Netherlands, Norway, France, Germany, Sweden, and UK.	Older adults (≥65y)	2,707	Beers criteria (version 1997&2003), Mcleod criteria (version 1997)	19.8%
Castillo-Páramo (2014) <sup>28</sup>	7	2011	Fifty-three health centers, Spain	Older adults (≥65y)	108,322	STOPP/START (version 1)	37.5-50.7%
Nuñez-Montenegro (2019) <sup>29</sup>	7	NM	Primary care centers, Spain	Older adults (>65y)	425	STOPP/START (version 1)	45.2%
Wang (2019) <sup>30</sup>	6	2013-2015	Twenty-three community pharmacies, Taiwan	Older adults (≥65y)	13,873	Beers criteria (version 2015)	65.5%
Ble (2015) <sup>31</sup>	7	2003-2011	Five hundred and four general practices, UK	Older adults (≥65y)	13,900	Beers criteria (version 2012)	36.9-38.7%
Moriarty (2015) <sup>32</sup>	6	1999, 2002, 2007, and 2012	Pharmacy claims data, Ireland	Older adults (≥65y)	1,595,054	STOPP criteria (version 1)	28.6-37.3%
Lopez-Rodriguez (2020) <sup>33</sup>	7	2016-2017	38 healthcare centres, Spain	Older adults (65-74y), primary care physicians	593+38	Beers criteria (version 2015&2019), STOPP criteria (version 1&2),	43.6-94.1%

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Cahir (2014) <sup>34</sup>	6	2007	Pharmacy claims database, Ireland	Older adults (≥70y) and general practitioners	338,725+1,938	STOPP criteria (version 1)	35.8%
Bradley (2014) <sup>35</sup>	6	2007	Clinical Practice Research Datalink, UK	Older adults (≥70y)	1,019,491	STOPP criteria (version 1)	29.0%
Lund (2012) <sup>36</sup>	6	2007	Veterans Affairs database, USA	Older adults (≥65y)	1,549,824	Zhan criteria (version 2001), Fick criteria (version 2003)	16.5-17.9%
Buck (2009) <sup>37</sup>	7	2006	Two outpatient primary care settings, USA	Older adults (≥65y)	61,251	Beers criteria (version 2002), Zhan criteria (version 2001)	16.6-23.2%
Cahir (2010) <sup>38</sup>	6	2007	Pharmacy claims database, Ireland	Older adults (≥70y)	338,801	STOPP criteria (version 1)	35.8%
Kovačević (2014) <sup>39</sup>	4	2012	Five community pharmacies, Serbia	Older adults (≥65y)	509	STOPP/START (version 1)	27.3%
Lin (2011) <sup>40</sup>	5	2008	One community health center, Taiwan	Older adults (≥65y)	327	Beers criteria (version 2003)	27.5%
Simões (2019) <sup>41</sup>	6	2018	Electronic prescription platform, Portugal	Older adults (≥65y)	757	Beers criteria (version 2015)	68.6%
Howard (2004) <sup>42</sup>	5	NM	Forty-eight family practices, Canada	Older adults (≥65y)	777	Beers criteria (version 1997)	16.3%
Zeenny (2017) <sup>43</sup>	5	2012	Community pharmacies, Lebanon	Older adults (≥65y)	248	Beers criteria (version 2012)	45.2%
Awad (2019) <sup>44</sup>	5	2016	Ten primary healthcare centers, Kuwait	Older adults (≥65y)	420	Beers criteria (version 2015), STOPP/START (version 2), 2014 FORTA list	44.3-55.7%
Gorup (2017) <sup>45</sup>	5	2014-2015	Thirty general practices, Slovenia	Older adults (>65y)	503	STOPP/START (version 1)	42.9%
Mand (2014) <sup>46</sup>	6	2000-2007	One hundred	Older adults (≥65y)	24,619	Beers criteria	10.4%

			and forty-eight family practices, Germany				
Tommelein (2016) <sup>47</sup>	5	2013-2014	Two hundred and four community pharmacies, Belgium	Older adults (≥70y)	1,016	GheOP <sup>3</sup> S tool	97.1%
Sakr (2018) <sup>48</sup>	4	2016-2017	Twenty community pharmacies, Lebanon	Older adults (≥65y)	350	Beers criteria (version 2015), STOPP/START	29.4-60.0%
Hamano (2014) <sup>49</sup>	5	2013	One clinic, Japan	Older adults (≥65y)	89	STOPP/START (version 1)	40.4%
Zhang (2020) <sup>50</sup>	5	2018	Six community health centers, China	Older adults (≥65y)	968	Beers criteria (version 2015)	32.7%
Liu (2020) <sup>51</sup>	5	NM	One community health center, China	Older adults (≥65y)	360	Beers criteria (version 2015), STOPP/START (version 2)	22.2%
Rogero-Blanco (2020) <sup>52</sup>	5	2016-2017	Thirty-eight health care centers, Spain	Older adults (65-75y)	593	Beers criteria (version 2015), STOPP/START (version 2014)	72.8%
Bala (2019) <sup>53</sup>	5	2015	Database, New Zealand	Older adults (≥65y)	16,568	Beers criteria (version 2015)	41.3-57.7%
Alhmoud (2015) <sup>54</sup>	6	2013	Home Health Care Services, Qatar	Older adults (≥65y)	501	Beers criteria (version 2012)	38.2 %
Sayin (2020) <sup>55</sup>	4	2018-2019	Two community pharmacies, Turkey	Older adults (≥65y)	158	GheOP <sup>3</sup> S tool	83.5%
Imai (2007) <sup>56</sup>	6	1997-1998	Data warehouse, USA	Older adults (>65y) and primary care physicians	2,035+166	Beers criteria (version 1997)	26.1%
Brekke (2008) <sup>57</sup>	4	NM	Prescription database, Norway	Older adults (≥70y) and general practitioners	85, 836+454	Norwegian General Practice (NORGE) criteria	18.4%
Ile (2017) <sup>58</sup>	5	2015-2016	Family medicine practices, USA	Older adults (≥65y) and family physicians	932+61	Beers criteria (version 2015), STOPP criteria (version 2)	35.5%

Longitudinal Studies							
Amos (2015) <sup>59</sup>	5	2012	Administrative healthcare database, Italy	Older adults (≥65y) and general practitioners	868,277	Maio criteria (version 2011)	27.8%
Pugh (2011) <sup>60</sup>	7	2002-2006	Veterans Affairs outpatient clinics, USA	Older adults (≥65y)	1,567,467	HEDIS HRME	12.3-13.1%

**Abbreviation**

NM: Not mentioned