

## The impact of the changing regulatory environment on the approval of new medicines across six major authorities 2004-2013

Over the last decade, there have been major improvements in the global regulatory environment, leading to a reduction in the time needed by agencies to approve new medicines. Despite this, review timing is under constant scrutiny, by patients seeking quicker availability of new medicines, regulatory agencies looking to improve processes and pharmaceutical companies seeking a more timely and high-quality review.

As part of the ongoing study to monitor regulatory performance, CIRS has analysed the trends in new medicines' approval between 2004 and 2013 by six regulatory authorities including Health Canada, Swissmedic, Australian TGA, EMA, the US FDA and Japanese PMDA. The key findings for EMA, FDA and PMDA have already been discussed in detail in the CIRS *R&D Briefing 54*.

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Review times continue to decrease in the majority of jurisdictions allowing an earlier licensing of important new medicines. Underlying factors influencing the overall time it takes for a new medicine to be submitted and then approved by an agency include company strategy, the conduct and the type of the review process, the type of the product and its therapeutic area; these aspects are analysed and discussed in this study.

**New active substance (NAS) median approval time for six regulatory authorities in 2004-2013**

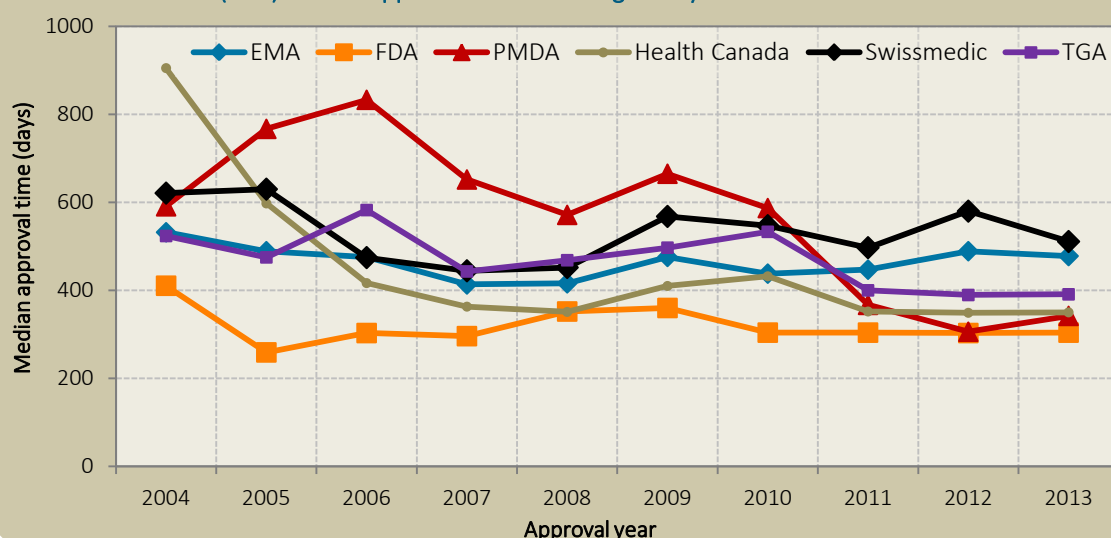
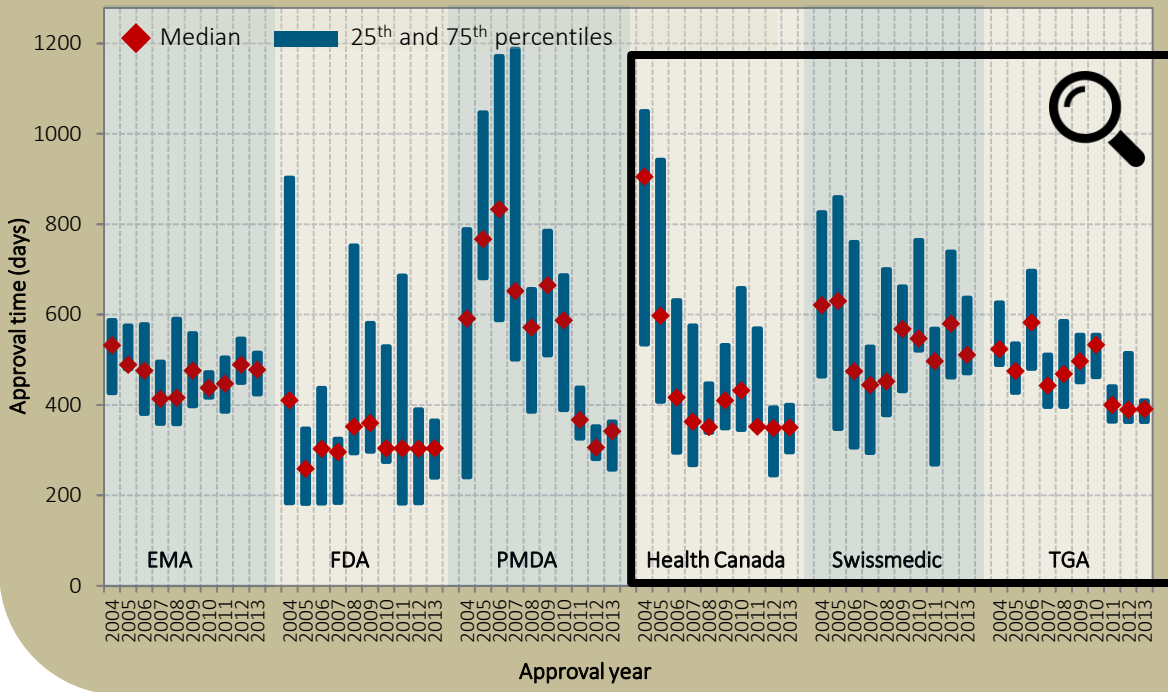


Figure 1: NAS approval time for six regulatory authorities in 2004-2013



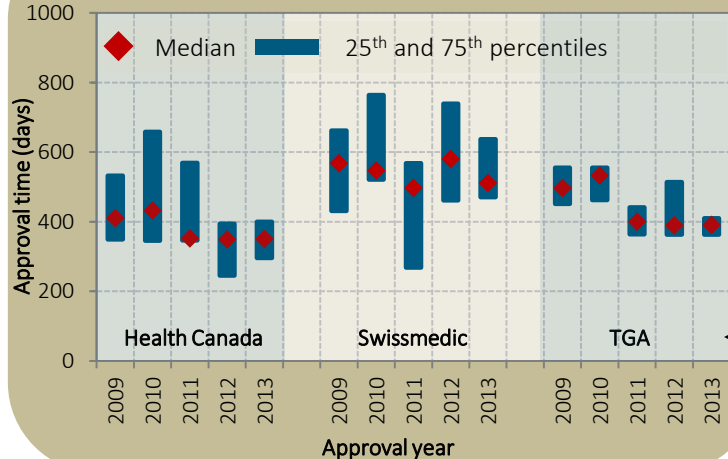
The convergence of median approval times amongst the ICH agencies (EMA, FDA and PMDA) in 2004-2013 (R&D Briefing 54) was also observed in the other three major regulatory authorities, Health Canada, Swissmedic and TGA. The past year has seen less variability in median approval times for new active substances (NASs) across the six agencies compared with the beginning of the decade, with the difference in the median approval between the fastest and the slowest agency decreasing from approximately 500 days in 2004 to 200 days in 2013. In 2013, the median approval times (in the order of highest to lowest) were 511, 478, 391, 350, 342 and 304 for Swissmedic, EMA, TGA, Health Canada, PMDA and FDA respectively (Fig. 1 and Fig. 2).

Besides a decrease in variability in approval times across the six agencies, the past years have also seen a decrease in variation in approval time (25<sup>th</sup> - 75<sup>th</sup> percentile) within the agencies, especially in FDA, PMDA, Health Canada and Swissmedic. EMA and TGA had the least variability in approval times over the past decade, and have established even more consistency in review timing in the last five years.

Compared with the first half of the decade, 2004-2008, the median approval times for 2009-2013 were faster by 141 and 91 days for Health Canada and TGA respectively. Swissmedic was slower in terms of median approval time in the second half of the decade by 34 days, whereas EMA was slower by 17 days for the same period.

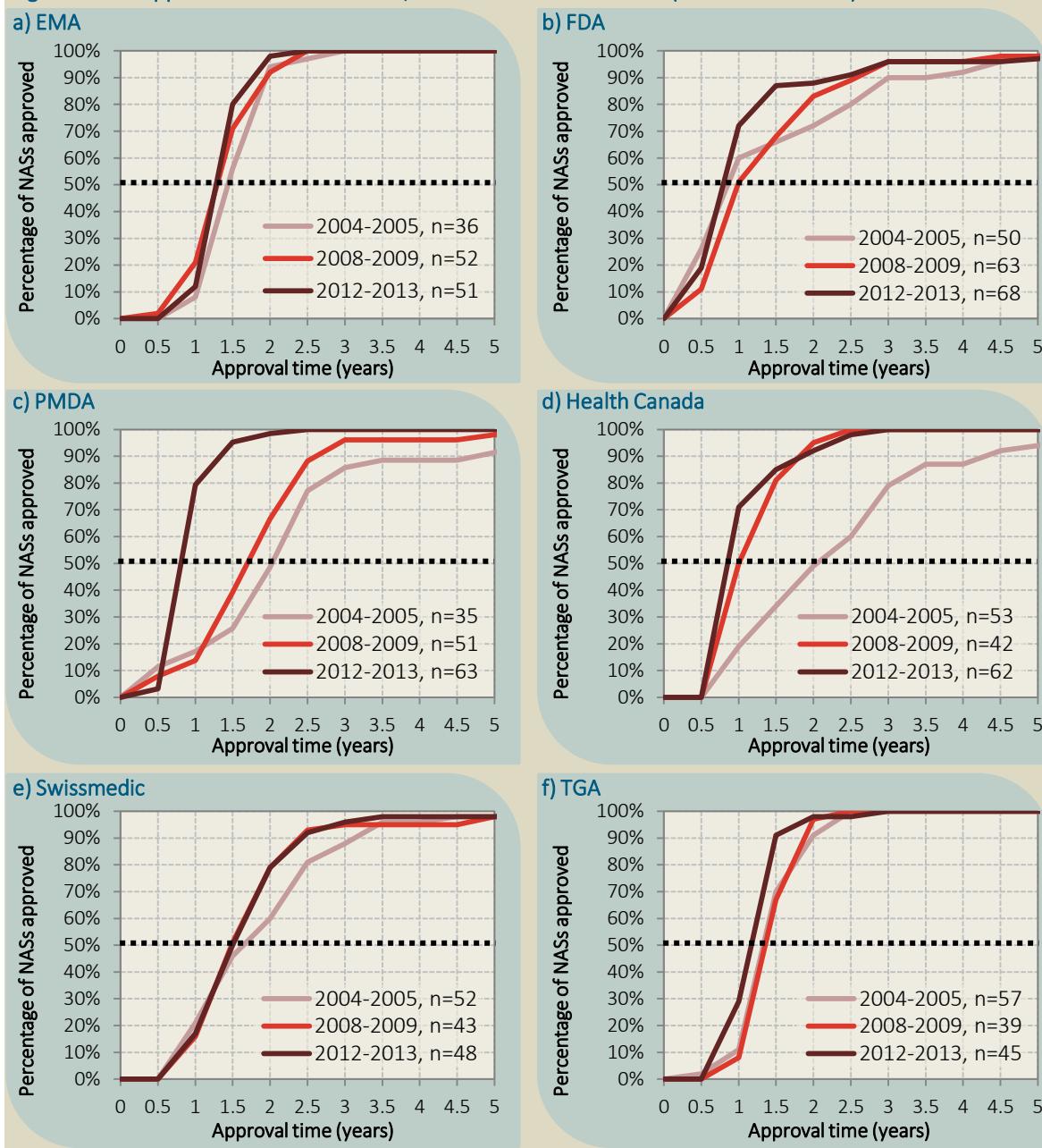
The majority of decrease in Health Canada approval time occurred in the first half of the decade, with median approval times decreasing by 54% between 2004 and 2006, likely reflecting Health Canada implementation of a new project management system. TGA implemented a new registration process in 2010, one of the key elements being the introduction of a pre-submission planning phase, which has led to a similar decrease in the median regulatory time by over 100 days in 2011, compared with 2010 (Fig. 2).

Figure 2: NAS approval time; focus on Health Canada, TGA and Swissmedic in 2009-2013



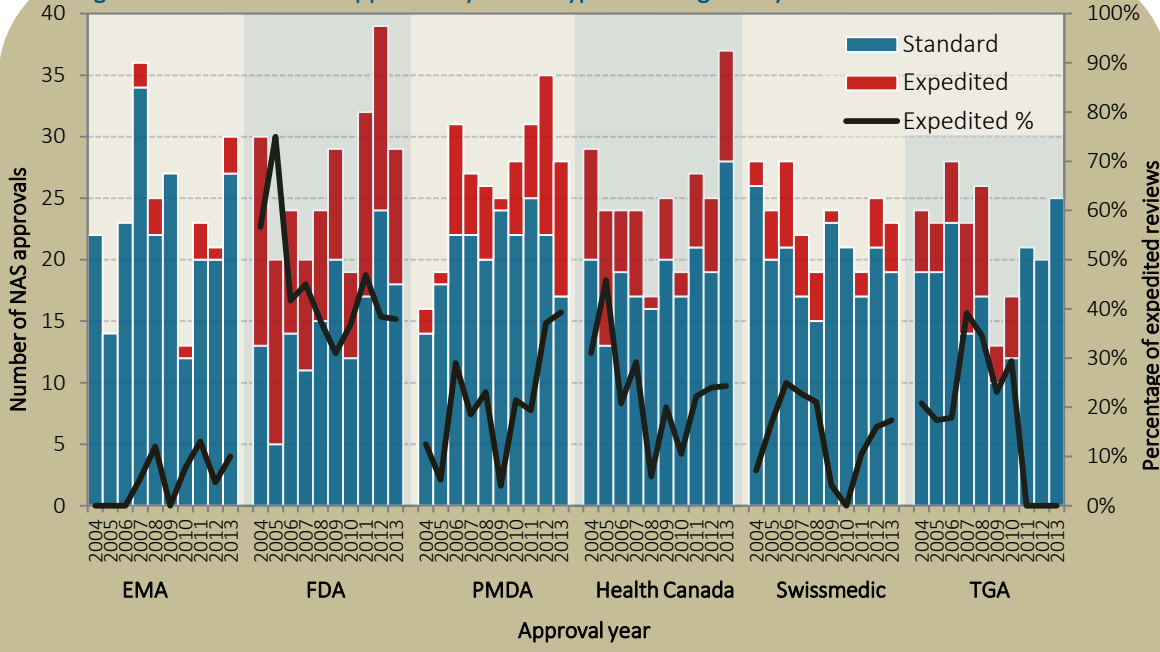
Noticeable variations still exist in the relative efficiency of individual regulatory authorities in granting approvals in a timely manner, which may be largely a reflection of the differences in processes employed by the authorities. The relative efficiencies were estimated using a cumulative percentage of approvals over a fixed period of time (Fig. 3). In order to study how the relative efficiency has changed in the past decade in each agency, three approval year ranges were chosen; 2004-2005, 2008-2009 and 2012-2013.

Figure 3: NAS approval time in 2004-2005, 2008-2009 and 2012-2013 (n= number of NAS)



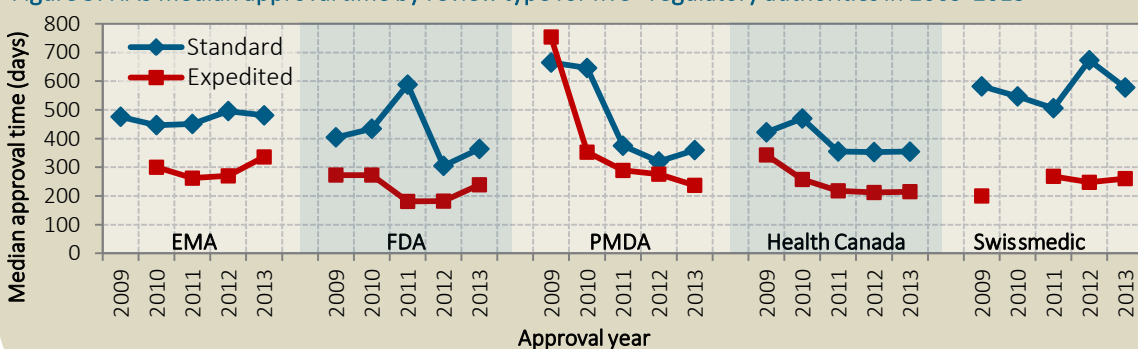
All agencies show that the efficiency in approval times has increased over the decade (when comparing 2004-2005 with 2012-2013), with PMDA and Health Canada showing not only the greatest improvement across the three time cohorts, as shown by decreasing approval time and granting approximately 50% approvals within 10 months (2012-2013), but also approving an increased number of NASs. In 2012-2013, TGA and EMA had 50% of approvals granted after about 15 months, whereas Swissmedic took approximately 18 months to grant approval to 50% of submitted NASs during that period; these figures changed only slightly over the decade, emphasising the consistency of these agencies' processes. In 2011-2013, 20% of FDA approvals were granted within six months of submission which was faster than for the other authorities and which may show the role played by priority review in the US system.

Figure 4: Number of NAS approvals by review type in six regulatory authorities in 2004-2013



The similarity in the approval numbers seen in the ICH markets in 2013 (*R&D Briefing 54*) was not reflected in the numbers approved by Health Canada, Swissmedic and TGA, where the numbers varied from 37 NASs for Health Canada, to 23 NASs and 25 NASs for Swissmedic and TGA respectively (Fig. 4). TGA, despite no longer having a formal expedited evaluation system following changes in the registration process in 2010, almost doubled its number of approvals in the past five years. Health Canada approved the highest number of NASs in a decade and the highest amongst all the agencies in 2013. Nevertheless, for Health Canada and for other small agencies, “a number of these compounds had already been approved in the USA in the previous years” (*R&D Briefing 54*), with FDA having first approved 81% of NASs that were approved by all six agencies in 2004-2013, which may be partly due to company strategy. Swissmedic had the smallest number of approvals out of all the agencies in 2013 with 23 NAS approvals.

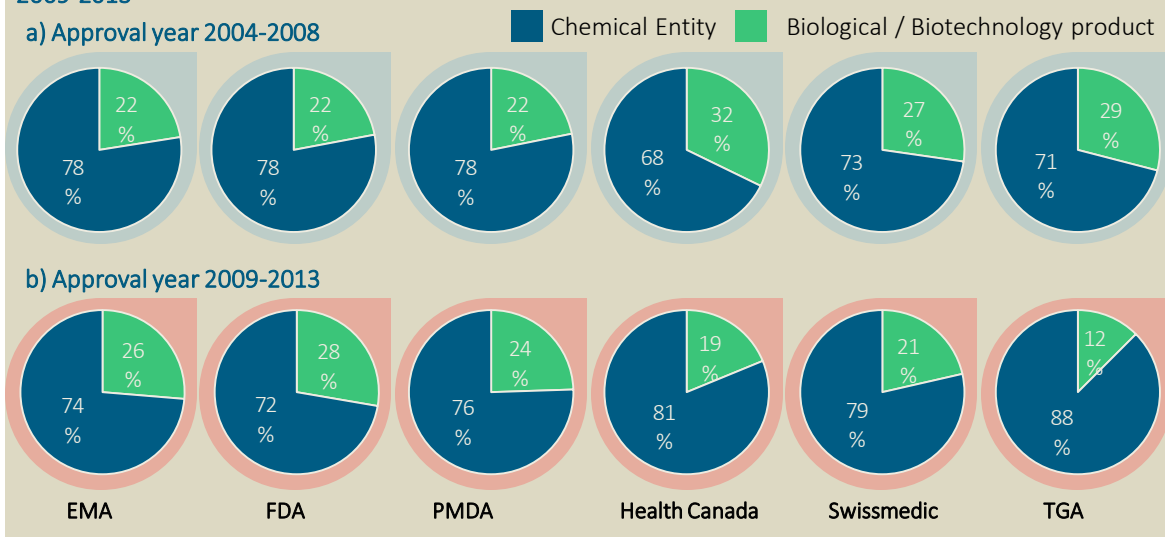
Figure 5: NAS median approval time by review type for five\* regulatory authorities in 2009-2013



\* TGA does not currently have an expedited evaluation programme

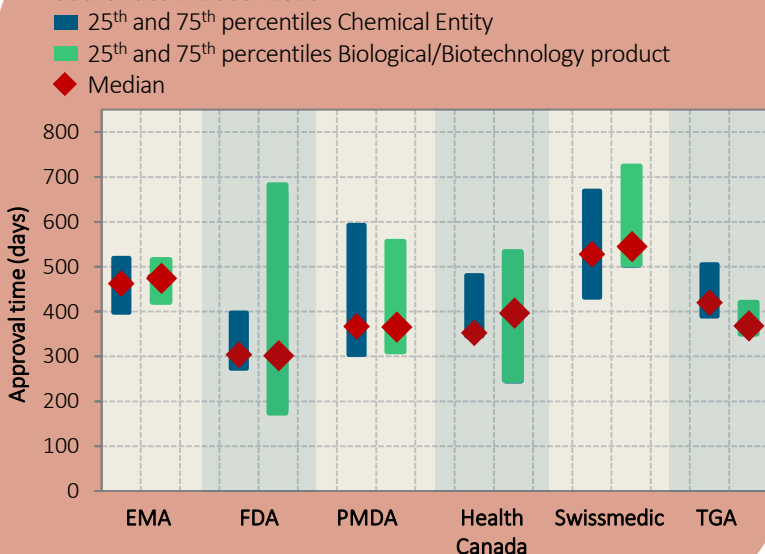
Currently, EMA, FDA, PMDA, Health Canada and Swissmedic offer an expedited review system designed to hasten the review process of promising NASs. The FDA and PMDA had the highest percentage of expedited approvals in 2013, at approximately 40%, compared with 24% for Health Canada, 17% for Swissmedic and 10% for EMA (Fig. 4). For PMDA, the proportion of applications that qualified for an expedited review increased from 19% in 2004-2008 to 25% in 2009-2013, with an all time high in 2013. For Health Canada, Swissmedic and FDA, a decrease of 7%, 8% and 12% respectively was seen in the proportion of expedited approvals for the two time periods. More time is needed to see whether these changes reflect a long-term trend. In 2013, the agency with the greatest difference in median approval time between expedited and standard review was Swissmedic with a difference of 320 days (Fig. 5); a difference of 145 days was observed for EMA and Health Canada, and approximately 125 days for PMDA and FDA.

Figure 6: Percentage of NAS approvals by compound type in six regulatory authorities in 2004-2008 and 2009-2013



During 2004-2013, the proportion of chemical entities and biological/biotechnology products (vaccines excluded) remained similar across the agencies (Fig. 6). The proportion of each compound type was also comparable when looking at the numbers approved during the first and second part of the decade, though the total number of biological/biotechnology NASs across all six agencies has decreased slightly by 3% in the second part of the decade. EMA, FDA and PMDA have seen a minimal increase in the number of biological/biotechnology products from 2004-2008 compared with 2009-2013, by 4%, 6% and 2% for each agency respectively. Conversely, the number of biological/biotechnology products decreased by 6% for Swissmedic from 2004-2008 to 2009-2013, and by 13% for Health Canada and 17% for TGA during the same time frame.

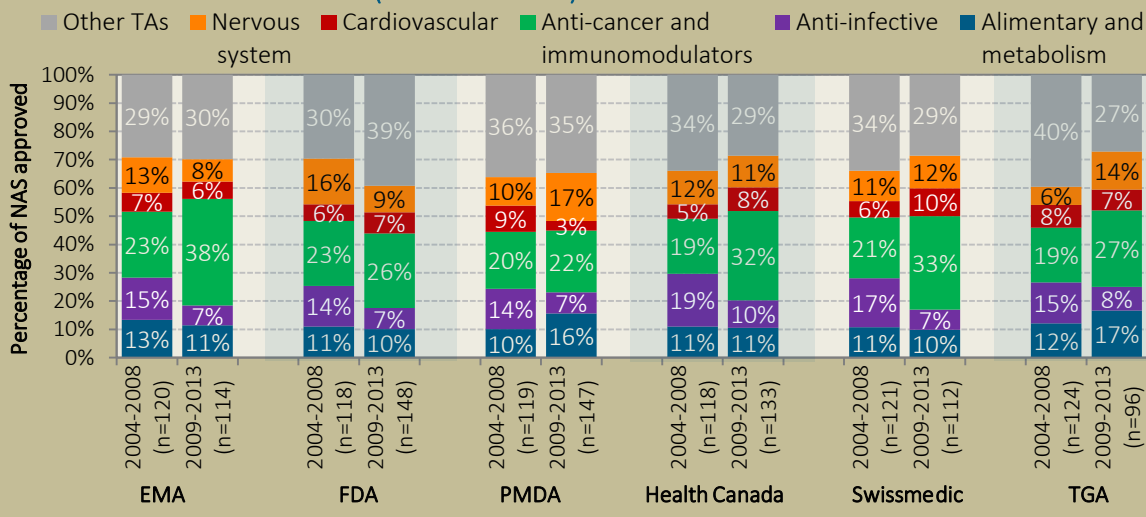
Figure 7: NAS approval time by compound type for six regulatory authorities in 2009-2013



During 2009-2013, the difference between the median approval time for a chemical entity and the median approval time for a biological/biotechnology product was minimal across EMA, FDA, PMDA, Health Canada and Swissmedic, with chemical entities being slightly faster to approve by 42 days for Health Canada and by 14 days for Swissmedic, and having approximately the same median approval time for FDA and PMDA (Fig. 7). The only outlier was TGA, where biological/biotechnology products were faster to approve compared with chemical entities by approximately 50 days.

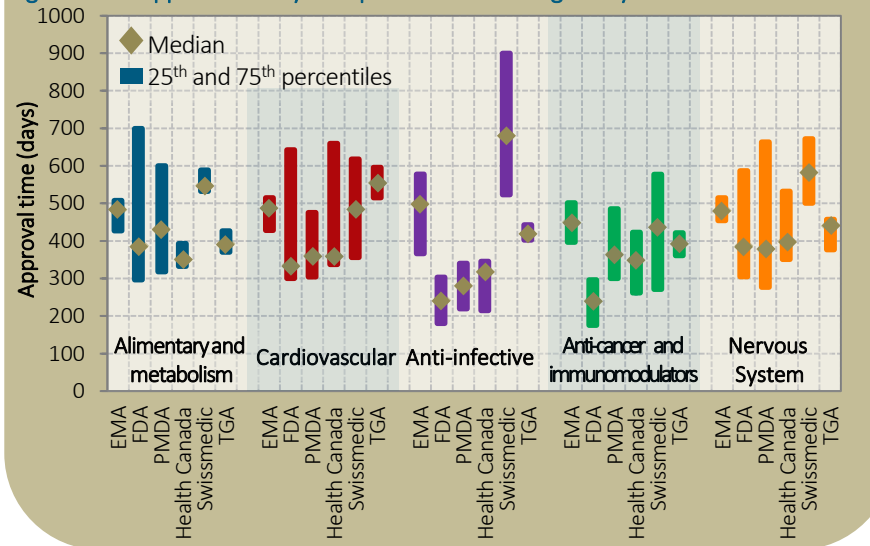
There was almost no difference in variation in approval time (25<sup>th</sup>-75<sup>th</sup> percentile) between biological/biotechnology products and chemical entities for EMA, PMDA, Swissmedic and TGA. Although having a similar median approval time for chemical entities compared with biological/biotechnology products, the FDA and Health Canada had a larger difference in variation in approval time between the two compound types, with difference between 25<sup>th</sup>-75<sup>th</sup> percentile for chemical entities and biological/biotechnology products of about 360 days for FDA and 150 days for Health Canada.

Figure 8: Percentage of NAS approvals by therapeutic area in six regulatory authorities in 2004-2008 and 2009-2013 (n=number of NAS)



During 2009-2013, the top five therapy areas (TAs) approved across all six agencies were anti-cancer and immunomodulators (29% of total approvals), alimentary and metabolism (12%), nervous system (12%), anti-infective (8%) and cardiovascular (7%). The second half of the decade saw a major increase in approvals of anti-cancer and immunomodulator NASs and a large decrease in approvals of anti-infective NASs across all six agencies (Fig. 8).

Figure 9: NAS approval time by therapeutic area for six regulatory authorities in 2009-2013



For three therapeutic areas; cardiovascular, anti-infective and anti-cancer and immunomodulators, FDA median approval times were the fastest amongst the six agencies, with 335, 242 and 240 days respectively. Alimentary and metabolism NASs had the shortest time to approval at Health Canada with 351 days, whereas nervous system NASs were the fastest to approve at PMDA with 378 days (Fig. 9).

**Focus on cancer**

The last five years have seen a large increase in the approval of anti-cancer and immunomodulator NASs (Fig. 8), suggesting that companies are developing more compounds to address this high unmet medical need or that companies are creating better submission dossiers. The anti-cancer and immunomodulator approvals were characterised by short approval times, which may reflect the use of expedited review pathways within these jurisdictions. In 2009-2013, median approval times for anti-cancer and immunomodulator therapies were fastest compared with other therapeutic areas across four agencies, EMA, FDA, Swissmedic and TGA, but were equally rapid for PMDA and Health Canada. This is summarised below:

	EMA	FDA	PMDA	Health Canada	Swissmedic	TGA
Median approval time (days) for anti-cancer and immunomodulator NASs 2009-2013	450	240	365	350	437	392



A true comparison of regulatory performance can be derived from studying the review of compounds that were approved by all compared agencies. It was possible to identify 52 NASs that were approved by the six agencies within 2004-2013 timeframe. The rollout and approval time for each agency for these compounds (Fig. 10) as well as the rollout split into median submission gap and approval time components (Fig. 11) uncovered some of the limiting factors for the medicines to reach the market, such as company strategy to submit later or long approval times at a particular agency.

Figure 10: Rollout time \* and approval time for 52 NAS approved by all six authorities in 2004-2013

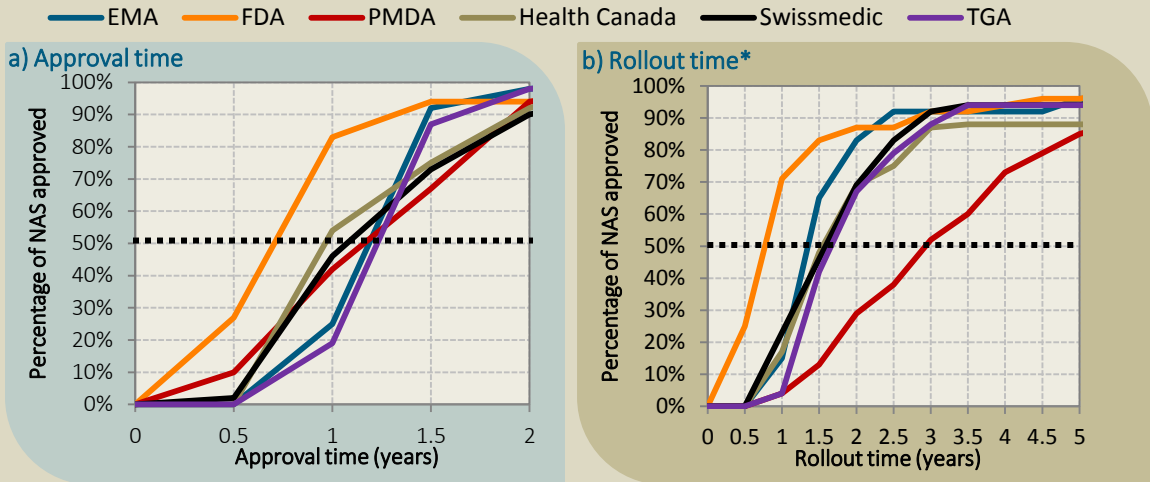
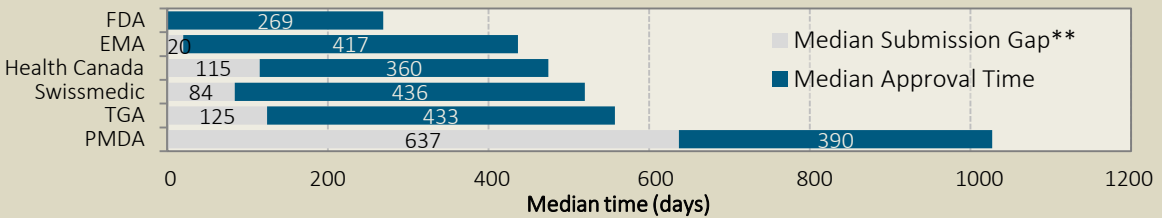


Figure 11: Median submission gap\*\* and median approval time for 52 NASs approved by all six authorities in 2004-2013



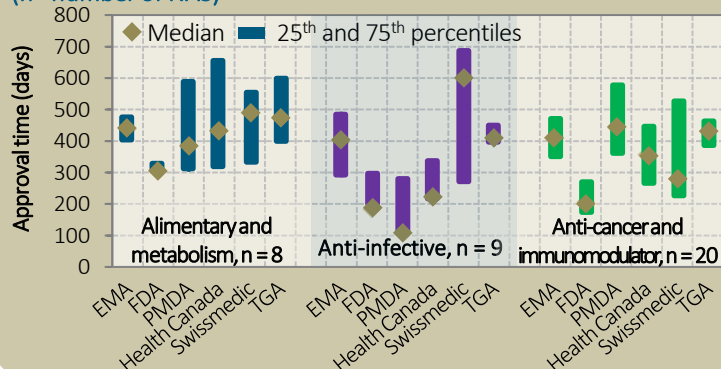
\* Date of submission at the first regulatory agency to the date of regulatory approval at the target agency

\*\* Date of submission at the first regulatory agency to the date of regulatory submission to the target agency

The FDA had the quickest approval time, with 50% of the 52 NASs being approved by FDA after 9 months (Fig. 10a), and being rolled out to the FDA within the same timeframe (Fig. 10b); this reflects to a certain extent the absence of a submission gap to FDA (Fig. 11). Conversely, although the rollout of medicines was the slowest for PMDA, with 50% of NASs reaching the market after 3 years, this is partially due to companies submitting later to PMDA, with a median submission gap of almost two years (637 days) and a median approval time of just over a year (390 days). Nevertheless, more recent data suggests that strategies to Japan may be changing (R&D Briefing 54).

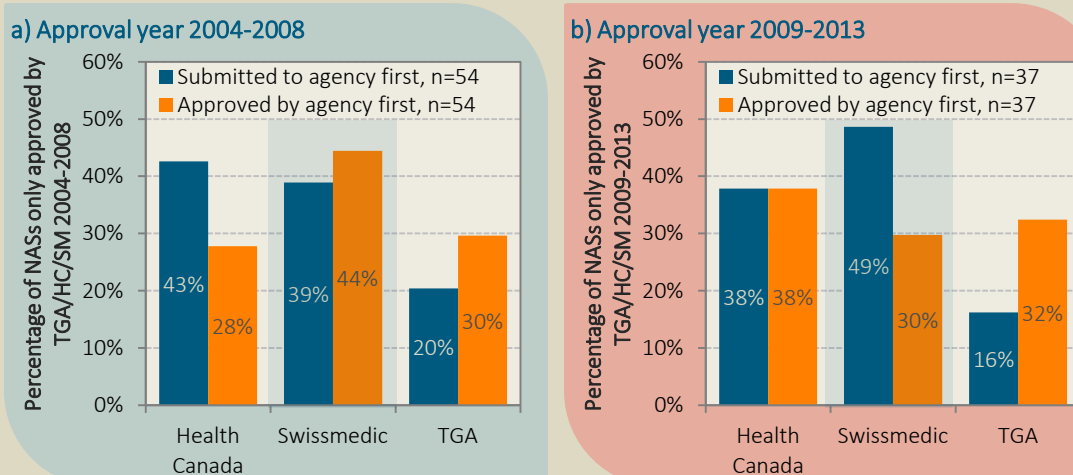
Out of the 52 NASs approved by all six agencies, 39% were in the anti-cancer and immunomodulators category, 17% anti-infective and 15% alimentary and metabolism, potentially reflecting areas of highest unmet medical need from a global perspective. The anti-infective NASs had the shortest approval times across all the therapeutic areas for all jurisdictions except Swissmedic, where anti-cancer and immunomodulator NASs were the quickest to approve (Fig. 12); these timings may reflect the use of expedited review for these two therapeutic areas.

Figure 12: Approval time for 52 NASs approved by all six regulatory authorities for the top three therapeutic areas in 2004-2013 (n= number of NAS)



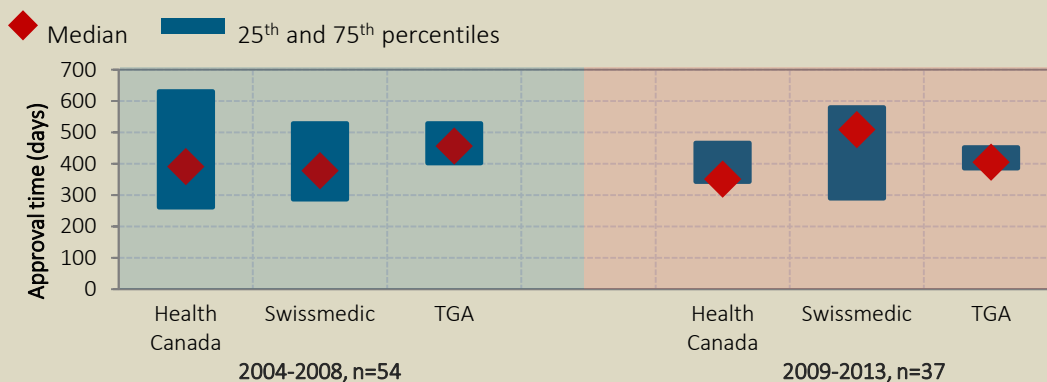
In order to obtain a better comparison of the change in the regulatory environment in Health Canada, Swissmedic and TGA, common compounds approved by all three agencies in 2004-2008 and 2009-2013 were identified; there were 54 NASs approved in 2004-2008, and 37 NASs approved in 2009-2013 (Fig. 13). The submission and the approval patterns for these compounds may reveal changes in companies' submission strategy to these markets from 2004-2008 to 2009-2013 in addition to changes made at these three agencies during the decade. Although 43% of submissions were made first to Health Canada in 2004-2008, only 28% of NASs were approved first in that jurisdiction and the largest proportion of approvals occurred first at Swissmedic (44%). This changed in the second part of the decade, with Health Canada approving a higher proportion of NASs first, despite fewer companies submitting to this agency first. Conversely, although 49% of submissions were made to Swissmedic first in 2009-2013, only 30% were also approved first at that agency. For TGA, the submission and approval pattern remained similar for the two parts of the decade, although a slight shift was observed toward a higher proportion of first approvals despite a lower number of first submissions in 2009-2013 compared with 2004-2008.

Figure 13: Percentage of NASs 'first submitted to an agency' or 'approved by an agency first', for a group of NASs only approved by Health Canada, Swissmedic and TGA between 2004-2008 and 2009-2013 (n=number of NAS)



The median approval times for the 54 common compounds approved in 2004-2008 and the 37 common compounds approved in 2009-2013 by the three agencies (Fig. 14), decreased for Health Canada and TGA by a median of 40 days and 52 days respectively and increased for Swissmedic by a median of 131 days. This is consistent with the trends seen in the overall median approval times for all compounds approved at these agencies in 2004-2008 and 2009-2013. Additionally, the review times for Health Canada and TGA were less variable (25<sup>th</sup>-75<sup>th</sup> percentile) in 2009-2013 compared with 2004-2008, and the opposite was true for Swissmedic.

Figure 14: Approval time for NASs only approved by Health Canada, Swissmedic and TGA between 2004-2008 and 2009-2013 (n=number of NAS)





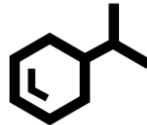
Approval in EMA 2013



EMA HAD A TOTAL OF 30 NASs APPROVED IN 2013 , WITH A MEDIAN APPROVAL TIME OF 478 DAYS



8 BIOLOGIC NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 471 DAYS



22 CHEMICAL NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 478 DAYS

13 ANTI-CANCER AND IMMUNOMODULATOR NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 442 DAYS



17 NASs IN OTHER THERAPY AREAS APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 483 DAYS



Type of Medicine

Designation and Review Type



3 EXPEDITED NASs APPROVALS IN 2013 WITH A MEDIAN APPROVAL TIME OF 336 DAYS, THIS IS A MEDIAN 145 DAYS FASTER THAN THE 27 STANDARD NAS APPROVALS IN 2013

4 ORPHAN NASs APPROVALS IN 2013 WITH A MEDIAN APPROVAL TIME OF 427 DAYS, THIS IS A MEDIAN 54 DAYS FASTER THAN THE 26 NON-ORPHAN NAS APPROVALS IN 2013



Availability in EMA



17% OF THE NASs APPROVED IN 2013 BY EMA WERE APPROVED IN EMA FIRST OR WITHIN ONE MONTH OF THEIR FIRST APPROVAL AT FDA, PMDA, HEALTH CANADA , SWISSMEDIC OR TGA



83% OF THE NASs APPROVED IN 2013 BY EMA WERE APPROVED AT FDA, PMDA, HEALTH CANADA, SWISSMEDIC OR TGA FIRST OR MORE THAN ONE MONTH BEFORE BEING APPROVED IN EMA

THE MEDIAN SUBMISSION GAP TO EMA FOR THESE NASs WAS 6 DAYS



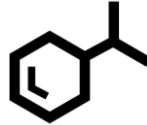
Approval in FDA 2013



FDA HAD A TOTAL OF 29 NASs APPROVED IN 2013, WITH A MEDIAN APPROVAL TIME OF 304 DAYS



5 BIOLOGIC NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 365 DAYS



24 CHEMICAL NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 304 DAYS

6 ANTI-CANCER AND IMMUNOMODULATOR NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 270 DAYS



23 NASs IN OTHER THERAPY AREAS APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 338 DAYS



Type of Medicine

Designation and Review Type



11 EXPEDITED NASs APPROVALS IN 2013 WITH A MEDIAN APPROVAL TIME OF 239 DAYS, THIS IS A MEDIAN 125 DAYS FASTER THAN THE 18 STANDARD NAS APPROVALS IN 2013

10 ORPHAN NASs APPROVALS IN 2013 WITH A MEDIAN APPROVAL TIME OF 302 DAYS, THIS IS A MEDIAN 36 DAYS FASTER THAN THE 19 NON-ORPHAN NAS APPROVALS IN 2013



Availability in FDA



76% OF THE NASs APPROVED IN 2013 BY FDA WERE APPROVED IN FDA FIRST OR WITHIN ONE MONTH OF THEIR FIRST APPROVAL AT EMA, PMDA, HEALTH CANADA, SWISSMEDIC OR TGA



24% OF THE NASs APPROVED IN 2013 BY FDA WERE APPROVED AT EMA, PMDA, HEALTH CANADA, SWISSMEDIC OR TGA FIRST OR MORE THAN ONE MONTH BEFORE BEING APPROVED IN FDA

THE MEDIAN SUBMISSION GAP TO FDA FOR THESE NASs WAS 391 DAYS

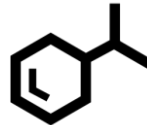


Approval in PMDA 2013

PMDA HAD A TOTAL OF 28 NASs APPROVED IN 2013, WITH A MEDIAN APPROVAL TIME OF 342 DAYS



5 BIOLOGIC NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 332 DAYS



23 CHEMICAL NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 345 DAYS

7 ANTI-CANCER AND IMMUNOMODULATOR NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 270 DAYS

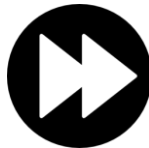


21 NASs IN OTHER THERAPY AREAS APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 360 DAYS



Type of Medicine

Designation and Review Type



11 EXPEDITED NASs APPROVALS IN 2013 WITH A MEDIAN APPROVAL TIME OF 237 DAYS, THIS IS A MEDIAN 123 DAYS FASTER THAN THE 17 STANDARD NAS APPROVALS IN 2013

8 ORPHAN NASs APPROVALS IN 2013 WITH A MEDIAN APPROVAL TIME OF 252 DAYS, THIS IS A MEDIAN 108 DAYS FASTER THAN THE 20 NON-ORPHAN NAS APPROVALS IN 2013



Availability in PMDA



36% OF THE NASs APPROVED IN 2013 BY PMDA WERE APPROVED IN PMDA FIRST OR WITHIN ONE MONTH OF THEIR FIRST APPROVAL AT EMA, FDA, HEALTH CANADA, SWISSMEDIC OR TGA



64% OF THE NASs APPROVED IN 2013 BY PMDA WERE APPROVED AT EMA, FDA, HEALTH CANADA, SWISSMEDIC OR TGA FIRST OR MORE THAN ONE MONTH BEFORE BEING APPROVED IN PMDA

THE MEDIAN SUBMISSION GAP TO PMDA FOR THESE NASs WAS 1057 DAYS



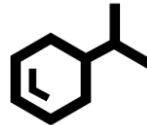
Approval in Health Canada 2013



HEALTH CANADA HAD A TOTAL OF 37 NASs APPROVED IN 2013, WITH A MEDIAN APPROVAL TIME OF 350 DAYS



6 BIOLOGIC NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 264 DAYS



31 CHEMICAL NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 352 DAYS

11 ANTI-CANCER AND IMMUNOMODULATOR NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 349 DAYS



26 NASs IN OTHER THERAPY AREAS APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 353 DAYS



Type of Medicine

Designation and Review Type



9 EXPEDITED NASs APPROVALS IN 2013 WITH A MEDIAN APPROVAL TIME OF 215 DAYS, THIS IS A MEDIAN 140 DAYS FASTER THAN THE 28 STANDARD NAS APPROVALS IN 2013

0 ORPHAN NASs APPROVED IN 2013 HEALTH CANADA DOES NOT CURRENTLY HAVE AN ORPHAN PROGRAMME



Availability in Health Canada



22% OF THE NASs APPROVED IN 2013 BY HEALTH CANADA WERE APPROVED IN HEALTH CANADA FIRST OR WITHIN ONE MONTH OF THEIR FIRST APPROVAL AT EMA, FDA, PMDA, SWISSMEDIC OR TGA



78% OF THE NASs APPROVED IN 2013 BY HEALTH CANADA WERE APPROVED AT EMA, FDA, PMDA, SWISSMEDIC OR TGA FIRST OR MORE THAN ONE MONTH BEFORE BEING APPROVED IN HEALTH CANADA

THE MEDIAN SUBMISSION GAP TO HEALTH CANADA FOR THESE NASs WAS 281 DAYS



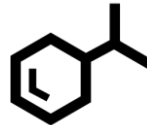
Approval in Swissmedic 2013



SWISSMEDIC HAD A TOTAL OF 23 NASs APPROVED IN 2013, WITH A MEDIAN APPROVAL TIME OF 511 DAYS



5 BIOLOGIC NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 548 DAYS



18 CHEMICAL NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 508 DAYS

10 ANTI-CANCER AND IMMUNOMODULATOR NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 501 DAYS



13 NASs IN OTHER THERAPY AREAS APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 548 DAYS



Type of Medicine

Designation and Review Type



4 EXPEDITED NASs APPROVALS IN 2013 WITH A MEDIAN APPROVAL TIME OF 261 DAYS, THIS IS A MEDIAN 318 DAYS FASTER THAN THE 19 STANDARD NAS APPROVALS IN 2013

0 ORPHAN NASs APPROVED IN 2013



Availability in Swissmedic



17% OF THE NASs APPROVED IN 2013 BY SWISSMEDIC WERE APPROVED IN SWISSMEDIC FIRST OR WITHIN ONE MONTH OF THEIR FIRST APPROVAL AT FDA, EMA, PMDA, HEALTH CANADA OR TGA



83% OF THE NASs APPROVED IN 2013 BY SWISSMEDIC WERE APPROVED AT FDA, EMA, PMDA, HEALTH CANADA OR TGA FIRST OR MORE THAN ONE MONTH BEFORE BEING APPROVED IN SWISSMEDIC

THE MEDIAN SUBMISSION GAP TO SWISSMEDIC FOR THESE NASs WAS 210 DAYS



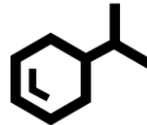
Approval in TGA 2013



TGA HAD A TOTAL OF 25 NASs APPROVED IN 2013, WITH A MEDIAN APPROVAL TIME OF 391 DAYS



3 BIOLOGIC NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 363 DAYS



22 CHEMICAL NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 401 DAYS

9 ANTI-CANCER AND IMMUNOMODULATOR NASs APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 391 DAYS



16 NASs IN OTHER THERAPY AREAS APPROVED IN 2013 WITH A MEDIAN APPROVAL TIME OF 406 DAYS



Type of Medicine

Designation and Review Type



0 EXPEDITED NASs APPROVALS IN 2013 TGA DOES NOT CURRENTLY HAVE AN EXPEDITED EVALUATION PROGRAMME

7 ORPHAN NASs APPROVALS IN 2013 WITH A MEDIAN APPROVAL TIME OF 362 DAYS, THIS IS A MEDIAN 44 DAYS FASTER THAN THE 18 NON-ORPHAN NAS APPROVALS IN 2013



Availability in TGA



4% OF THE NASs APPROVED IN 2013 BY TGA WERE APPROVED BY TGA FIRST OR WITHIN ONE MONTH OF THEIR FIRST APPROVAL BY FDA, EMA, PMDA, HEALTH CANADA OR SWISSMEDIC



96% OF THE NASs APPROVED IN 2013 BY TGA WERE APPROVED BY FDA, EMA, PMDA, HEALTH CANADA OR SWISSMEDIC FIRST OR MORE THAN ONE MONTH BEFORE BEING APPROVED BY TGA

THE MEDIAN SUBMISSION GAP TO TGA FOR THESE NASs WAS 559 DAYS





**Approval time**

Time calculated from the date of submission to the date of approval by the agency. This time includes agency and company time.

**Biological/Biotechnology Product**

A substance isolated from animal tissues or product produced by recombinant DNA or hybridoma technology and expressed in cell lines, transgenic animals or transgenic plants)for therapeutic, prophylactic or in vivo diagnostic use in humans.

**Chemical Entity**

An entity produced by chemical synthesis.

**New Active Substances (NAS)**

A chemical, biological, biotechnology or radiopharmaceutical substance that has not been previously available for therapeutic use in humans and is destined to be made available as a 'prescription only medicine', to be used for the cure, alleviation, treatment, prevention or in vivo diagnosis of diseases in humans. The term NAS also includes:

- An isomer, mixture of isomers, a complex or derivative or salt of a chemical substance previously available as a medicinal product but differing in properties with regard to safety and efficacy from that substance previously available
- A biological or biotech substance previously available as a medicinal product, but differing in molecular structure, nature of source material or manufacturing process and which will require clinical investigation.
- A radiopharmaceutical substance that is a radionuclide or a ligand not previously available as a medicinal product. Alternatively, the coupling mechanism linking the molecule and the radionuclide has not been previously available.

Applications that are excluded from the study

- Vaccines
- Any other application, where new clinical data were submitted.
- Generic applications.
- Those applications where a completely new dossier was submitted from a new company for the same indications as already approved for another company.
- Applications for a new or additional name, or a change of name, for an existing compound (i.e. a 'cloned' application).

**Priority review**

This is given to a drug product if it would be a significant improvement compared to marketed products in the treatment, diagnosis, or prevention of a disease.

**Rollout time**

Date of submission at the first regulatory agency to the date of regulatory approval at the target agency

**Submission Gap**

Date of submission at the first regulatory agency to the date of regulatory submission to the target agency

**WHO ATC classification**

- A - Alimentary and metabolism: Drugs for acid related disorders, gastrointestinal disorders, antiemetics and antinauseants, bile and liver therapy, laxatives, antidiarrheals, intestinal antiinflammatory/antiinfective agents, drugs used in diabetes.
- C - Cardiovascular: Cardiac therapy, antihypertensives, beta blocking agents, calcium channel blockers, agents acting on the renin-angiotensin system, serum lipid reducing agents.
- J - Anti-infectives: Antibacterials for systemic use, antimycotics for systemic use, antimycobacterials, antivirals for systemic use, immune sera and immunoglobulins, vaccines.
- L - Anticancer and immunomodulators: Antineoplastic agents, endocrine therapy, immunostimulants, immunosuppressive agents.
- N - Nervous system: Anesthetics, analgesics, antiepileptics, anti-parkinson drugs, psycholeptics, psychoanaleptics, other nervous system.

### Report prepared by:

Magdalena Bujar, MSc, Research Analyst

Neil McAuslane, PhD, Director, CIRS

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Centre for Innovation in Regulatory Science (CIRS)  
The Johnson Building, 77 Hatton Garden  
London  
EC1N 8JS  
UK

Email: [cirs@cirsci.org](mailto:cirs@cirsci.org)  
Website: [www.cirsci.org](http://www.cirsci.org)

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