

Regional Collaboration is Crucial for Effective ICT Support



Toyohiko Hayashi, Ph.D.

- **Professor Emeritus and Fellow**: Division of Science and Technology, **Niigata University**, Japan
- **Adviser**: ICT Support Center for Persons with Disabilities, **Niigata City**

Toshimitsu Yamaguchi, M.S.

- **Lecturer**: Graduate School of Science and Technology, **Niigata University**, Japan
- **AT Specialist & Director**: ICT Support Center for Persons with Disabilities, **Niigata City**



1. ICT Support Center for Persons with Disabilities

Historical Background of Niigata ICT Support Centre for Persons with Disabilities (NITSC) #1

- 1990s -

- 1990 **Americans with Disability Act (ADA) enacted in the USA**
- 1991 Technology Initiative for Disabled and Elderly people (TIDE) in Europe
- 1996 Association for the Advancement of Assistive Technology in Europe (AAATE)
- 1998 In Niigata Univ., **Department of Biocybernetics (related to Assistive Technology)** established in Faculty of Engineering

1. ICT Support Center for Persons with Disabilities

Historical Background of Niigata ICT Support Centre for Persons with Disabilities (NITSC) #2

- 2000s -

2006 Convention on the Rights of Persons with Disabilities (CRPD) enacted in the UN

2008 Niigata ICT Support Center for Persons with Disabilities (NITSC) established

2011 In Japan, Basic Act for Persons with Disabilities revised in accordance with CRPD


2013 CRPD ratified by Japanese Government

Act for Eliminating Discrimination against Persons with Disabilities enacted in Japan

1. ICT Support Center for Persons with Disabilities

Historical Background of Niigata ICT Support Centre for Persons with Disabilities (NITSC) #3

2022 In Japan, **Act to Promote Measures for Information Accessibility and Communication for People with Disabilities** enforced



When NITSC started operations, assistive technology-related legislations was yet to be established in Japan.



Such situation without legal support made it very difficult to carry out our ICT support activities in Niigata city.

1. ICT Support Center for Persons with Disabilities

The founding process of NITSC

- 2003 I visited **Computer Access Center** (currently, EmpowerTech) in Los Angeles, when I firstly participated in CSUN conference, making me strongly aware of the necessity of such facility for the disabled.
- 2007 According to our request for **ICT Support Center for Persons with Disabilities**, Niigata municipal government required a budget of the center to the assembly.
- 2008.5 **Education and Research Center for Human Support Sciences, Niigata University** was appointed as the trustee of the center.
- 2008.10 Niigata ICT Support Center for Persons with Disabilities (NITSC) was established in Niigata University.



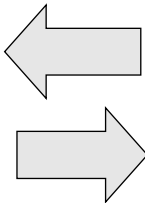
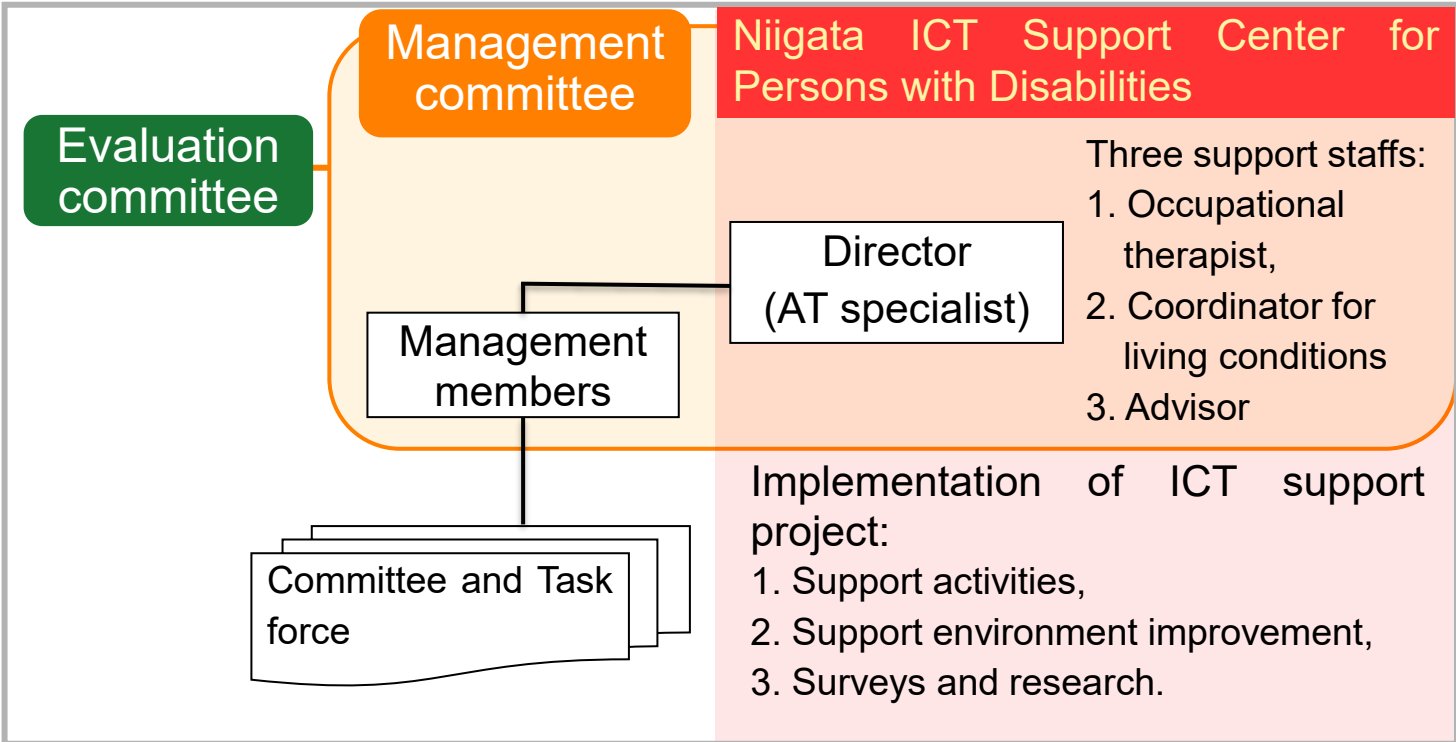
1. ICT Support Center for Persons with Disabilities

Organization of Niigata ICT Support Center for Persons with Disabilities (NITSC)



新潟市障がい者ITサポートセンター

Niigata University



Niigata city

2. Utilization survey of ICT-based assistive technologies

To what extent did persons with disabilities in Niigata city utilize ICT-based assistive technologies?

In order to accomplish ICT support effectively using a **limited number of social resources**



To survey the **actual use** of ICT-based assistive technologies



Questionnaire survey (2008) :

Subjects: All persons with disabilities authorized by municipal government,

Number of distribution: 1,500

Number of collection: 853 (56.9 %)

Number of valid responses: 799 (53.3 %)



2. Utilization survey of ICT-based assistive technologies

Classification of respondents by disability

Classification	Number of persons	Ratio %
Visual impairments	41	5.1
Auditory impairments	33	4.1
Physical impairments	272	34.0
Speech, language and swallowing disorders	3	0.3
Internal disorders	97	12.1
Physical (unknown)	29	3.6
Intellectual disabilities	2	0.2
Mental disorders	1	0.1

2. Utilization survey of ICT-based assistive technologies

Questions for persons with physical impairments

- Typical devices for persons with physical impairments:

- 1) Environmental control system
- 2) Screen keyboard
- 3) Speech recognition
- 4) Head-controlled mouse
- 5) Single switch



- One choice from 5 alternatives for each device:

“Unknown”, “known a little”, “known but unnecessary”,
“Necessary but not in use” and “In-use”

2. Utilization survey of ICT-based assistive technologies

Results: Persons with physical impairments (N=272)

Device	Unknown	known a little	known but unnecessary	Necessary but not in use	In-use
Env. control system	91.5%	5.1%	2.2%	0.4%	4.7%
Screen keyboard	86.4%	8.5%	4.4%	0.4%	0.4%
Speech recognition	69.9%	18.4%	11.0%	0.4%	0.4%
Head-controlled mouse	83.0%	10.7%	5.1%	0.4%	0.7%
Single switch	77.9%	11.4%	7.0%	0.7%	2.9%



In 2008, even typical devices were nearly unknown in Niigata.



Needs for these devices had yet to be apparent.

3. Activities of NITSC

Activities of NITSC: Initial challenges



In 2008, even typical devices were not known well in Niigata.



Needs for the devices had yet to be apparent.

Specialists taking care of persons with disabilities had little knowledge and experience of ICT-based assistive technologies.



3. Activities of NITSC

Activities of NITSC: Initial challenges

Specialists taking care of persons with disabilities had little knowledge and experience of assistive technologies.



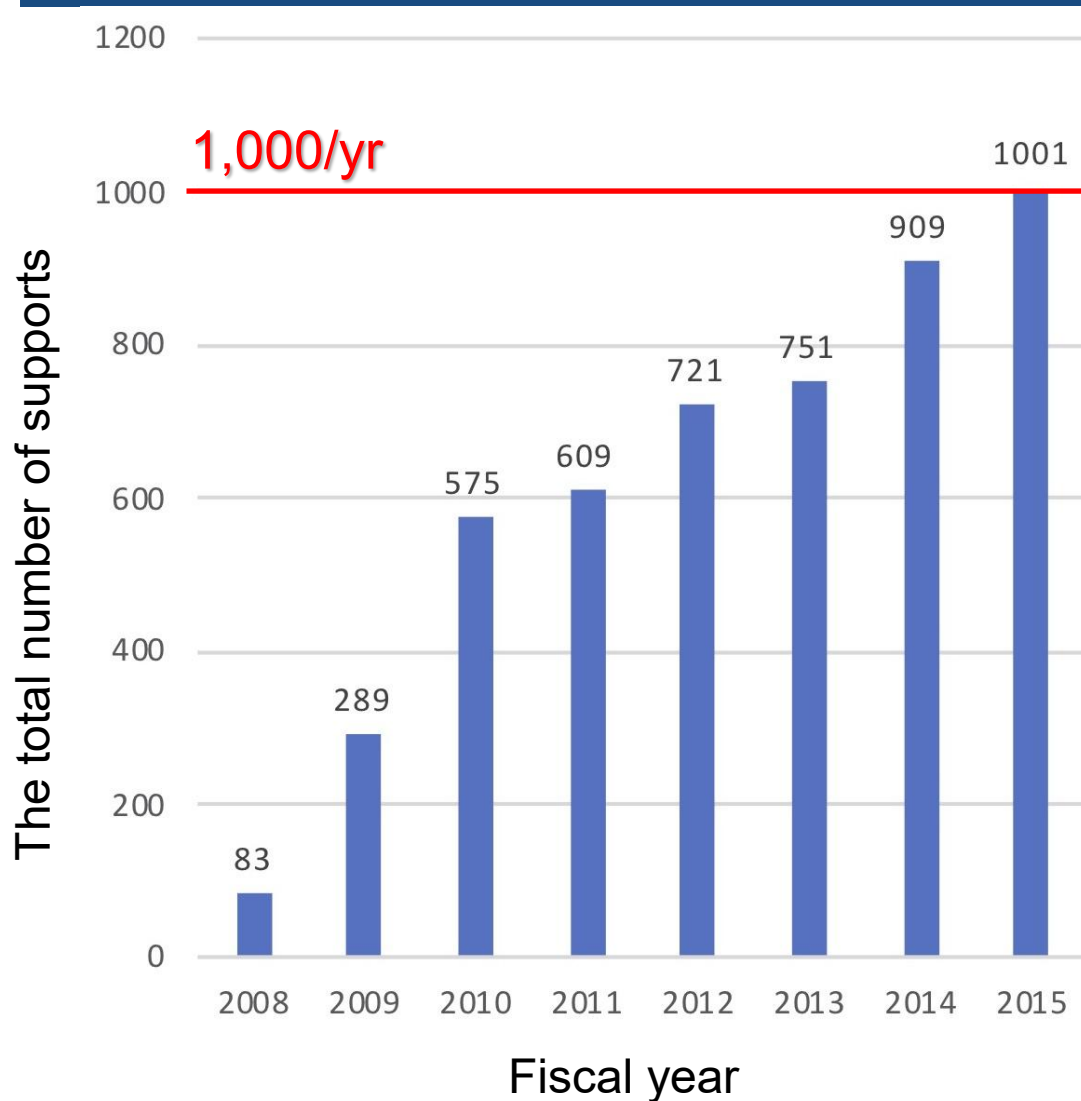
Initial services of NITSC:

1. To improve support environment in Niigata.
2. To provide ordinary support services for persons with disabilities,

To intervene activities of special needs education schools and hospitals that every person with disabilities always use.

3. Activities of NITSC

Expansion of support services of NITSC



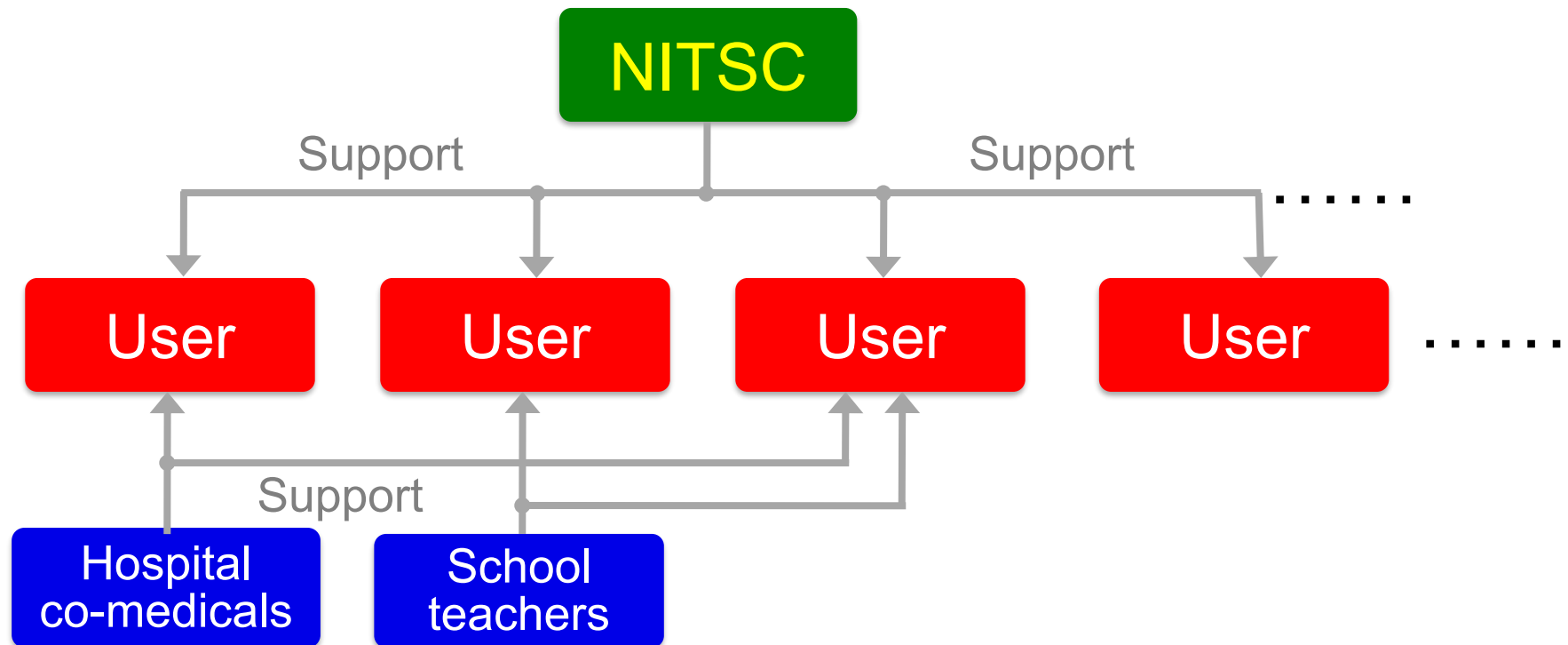
Active interventions to schools and hospitals

- Our support cases increased year by year constantly.
- In 2015, the number of support cases arrived at 1,001, the maximum level that an AT-specialist is able to deal with.

3. Activities of NITSC

Change of ICT support scheme of NITSC

- Previous support scheme

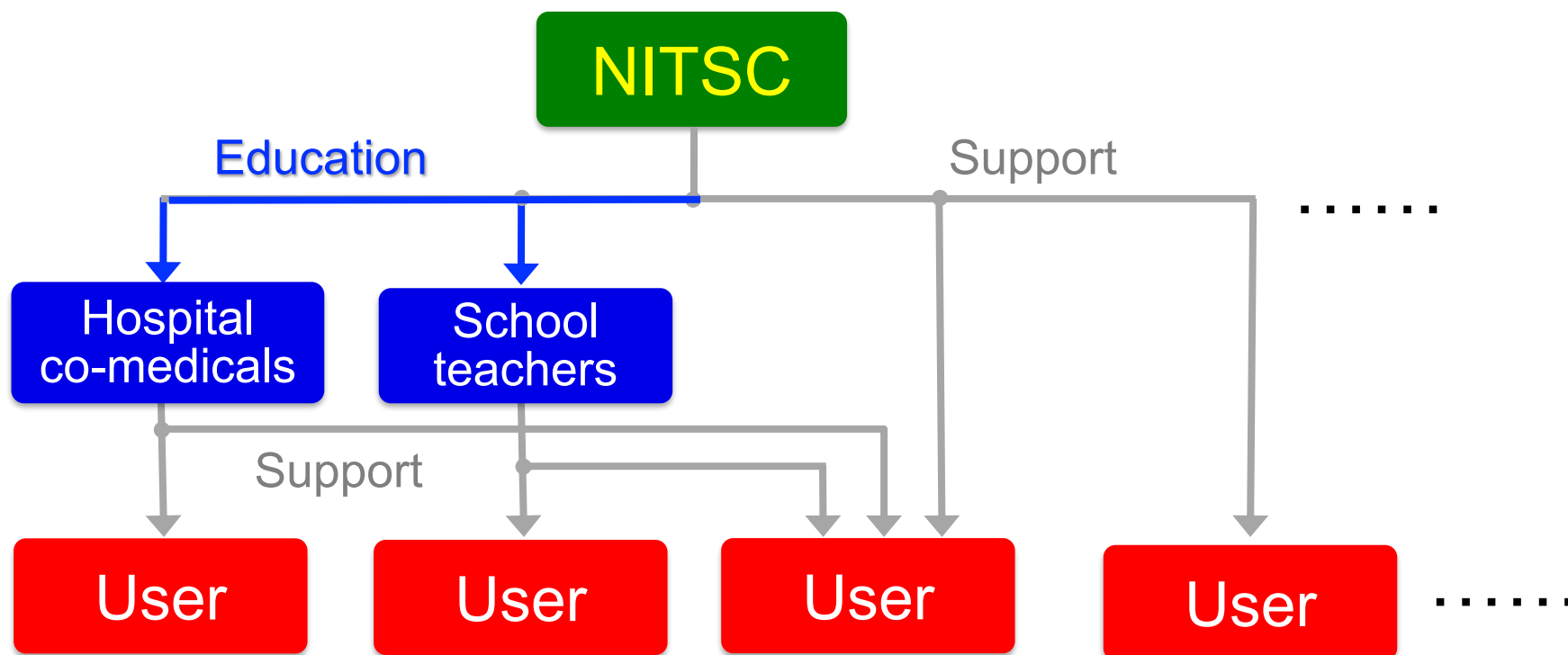


NITSC supported individual users in cooperation with relating facilities, but the number of users was restricted due to our manpower.

3. Activities of NITSC

Change of ICT support scheme of NITSC

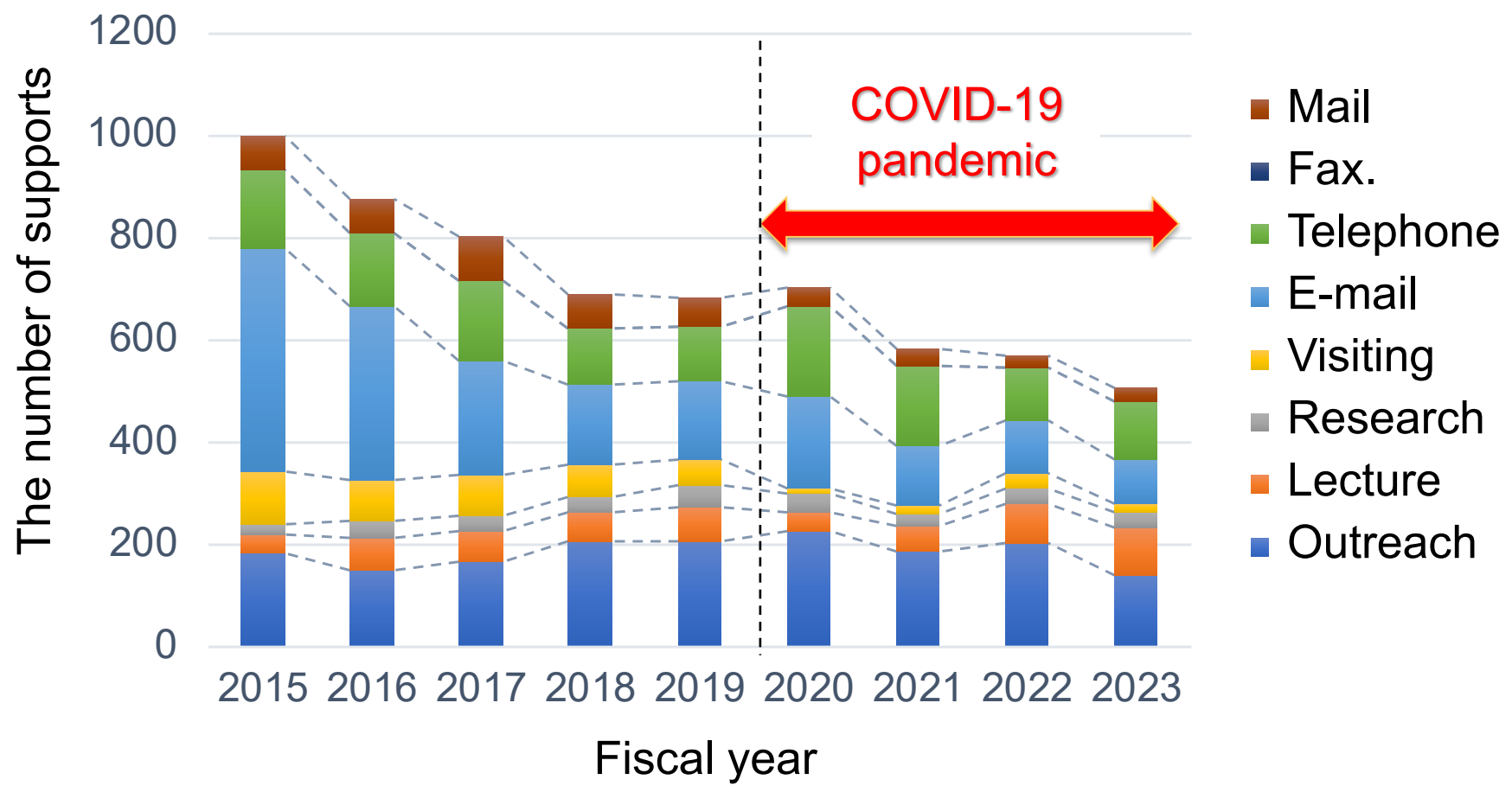
- Hierarchical support scheme



NITSC educates co-medicals and teachers on ICT-based AT, as well as supports individual users in order to increase the number of users supported directly and indirectly.

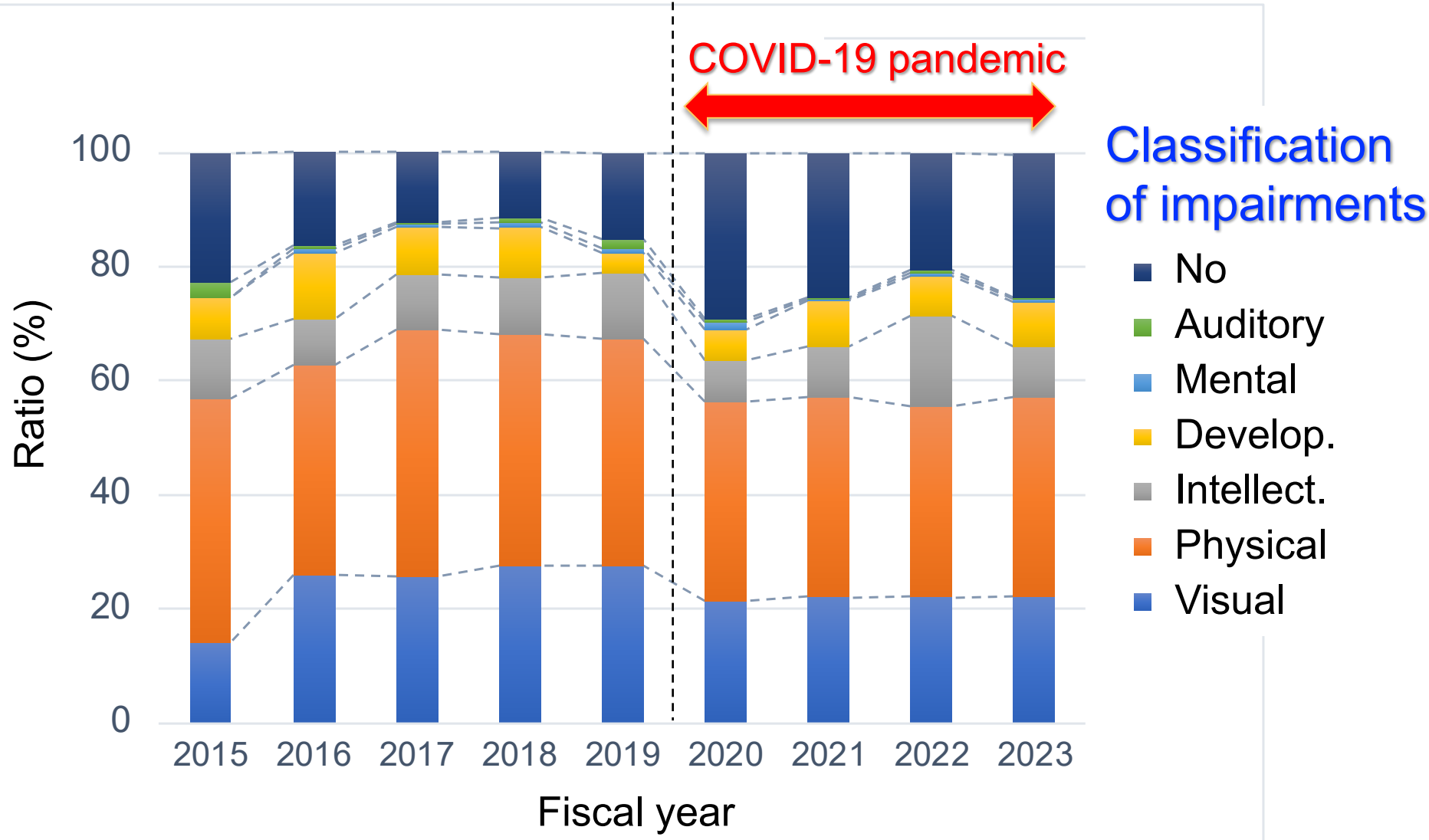
3. Activities of NITSC

Change of support services (2015-23)



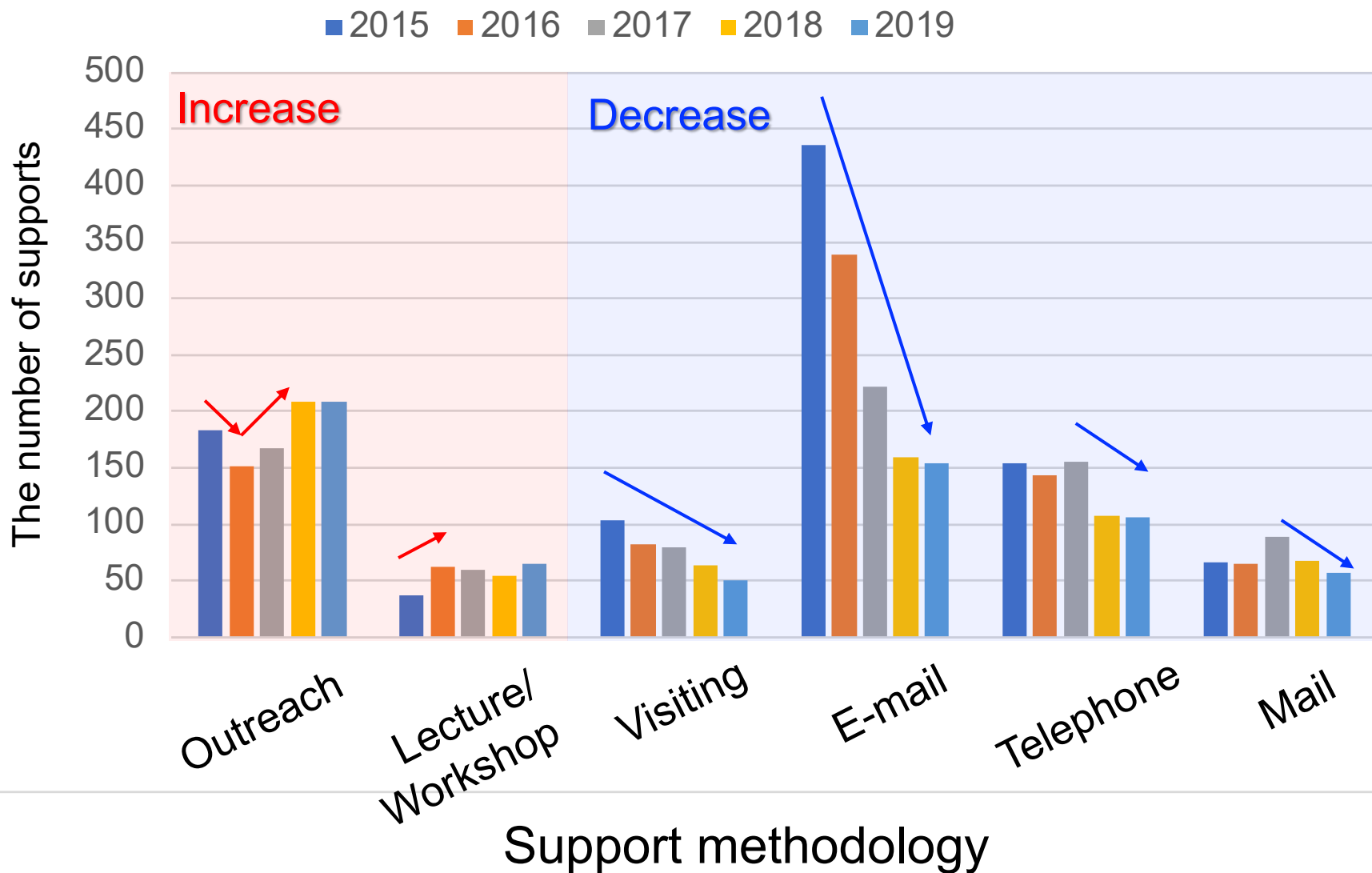
3. Activities of NITSC

Change of category rate (2015-23)



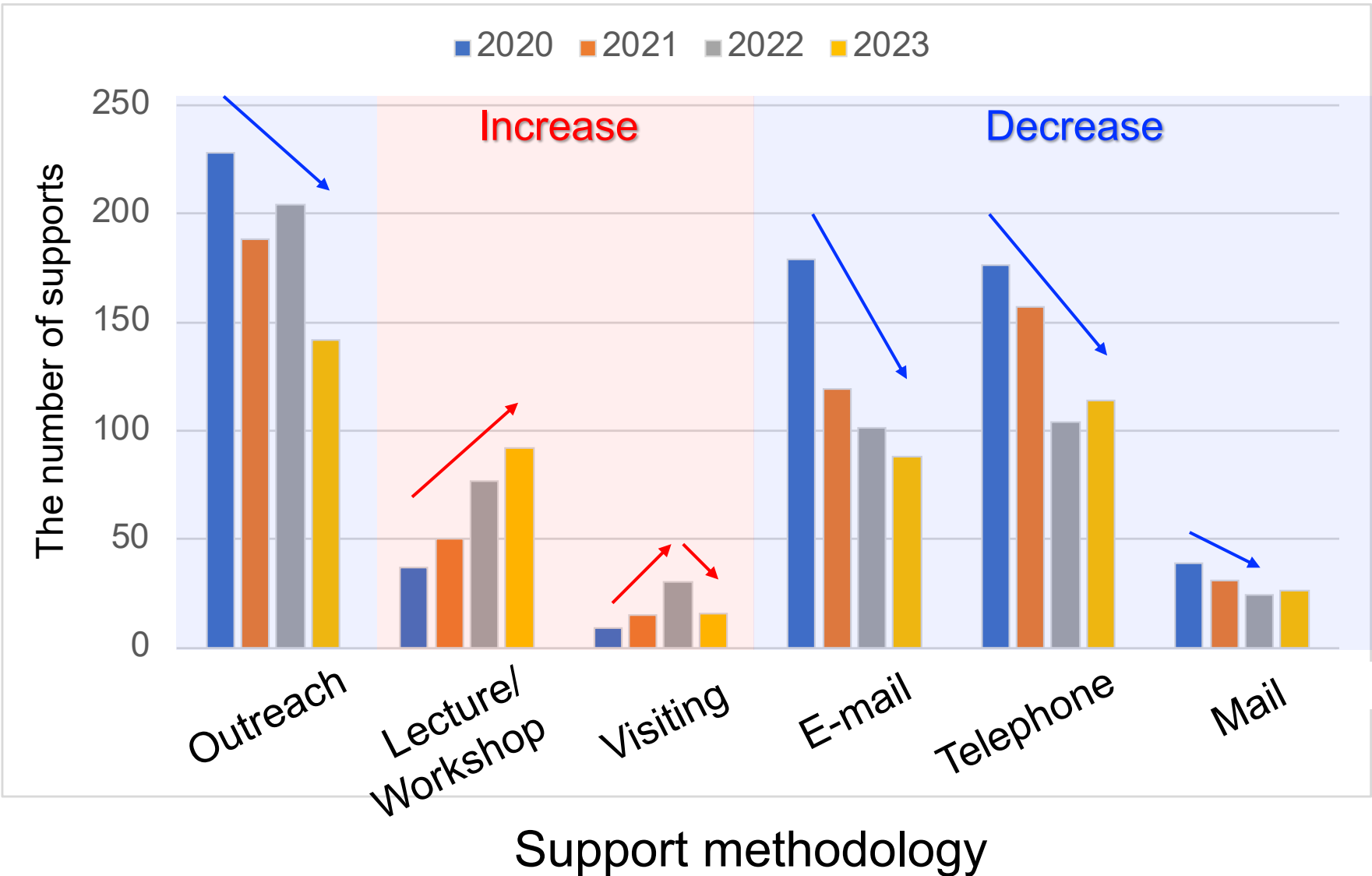
3. Activities of NITSC

Change of support services before pandemic



3. Activities of NITSC

Change of support services during pandemic



4. Regional collaboration is essential!

Establishment of regional collaboration scheme

- Support policy of NITSC

To provide users with **the best support** in collaboration with other relating specialists, such as teachers, medical doctors and co-medicals.

- Limitations in Niigata city

In most welfare, medical and educational facilities, there are **few staffs with knowledge and experience of ICT-based AT.**



4. Regional collaboration is essential!

Establishment of regional collaboration scheme

- Support policy of NITSC

To provide users with **the best support** in collaborating with other relating specialists, such as teachers, medical doctors and co-medicals.

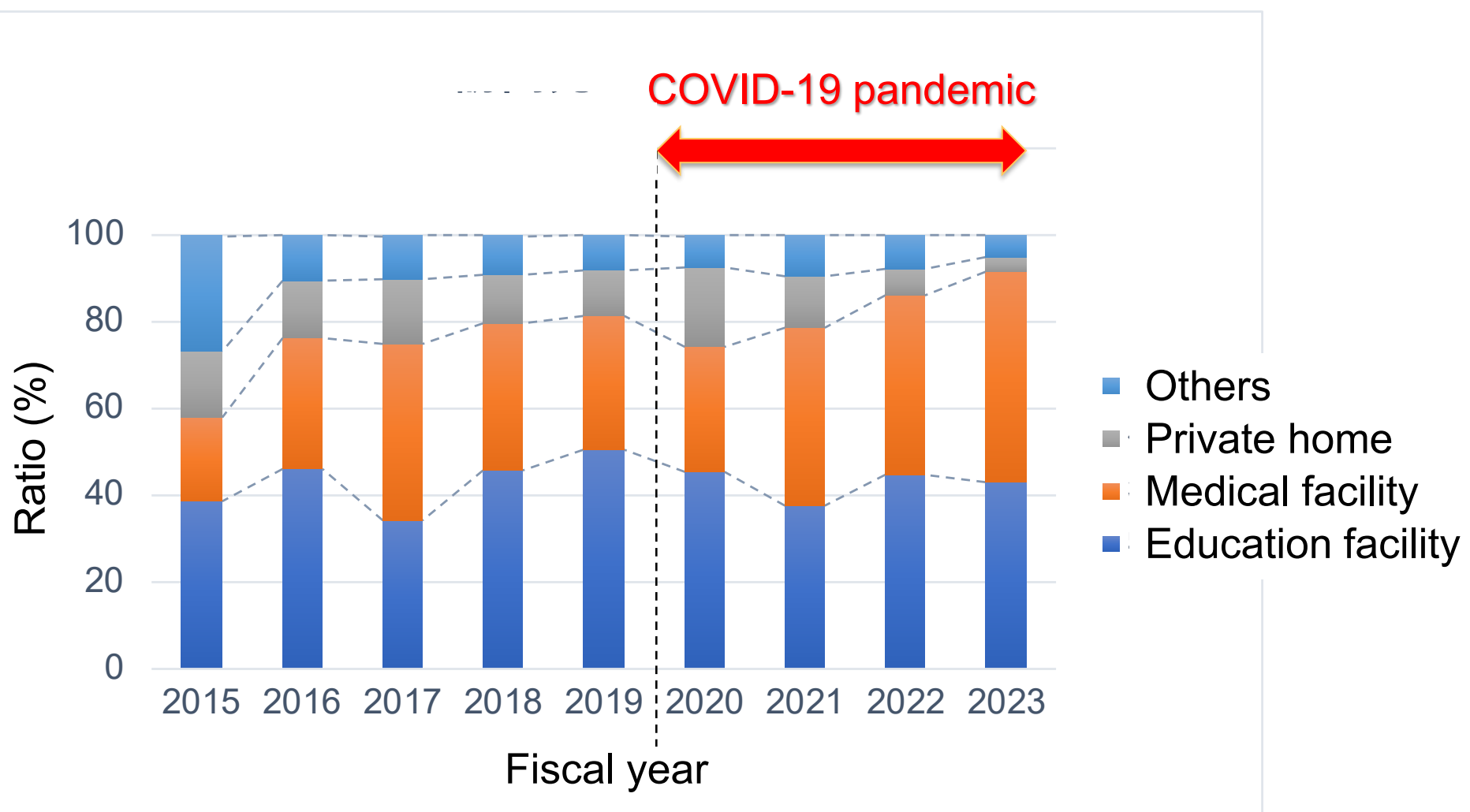
- Collaboration with relating facilities is essential

ICT-based support for persons with disabilities should be done in collaboration with **schools, hospitals, home nursing stations, organizations for the disabled, educational committee** and so on.



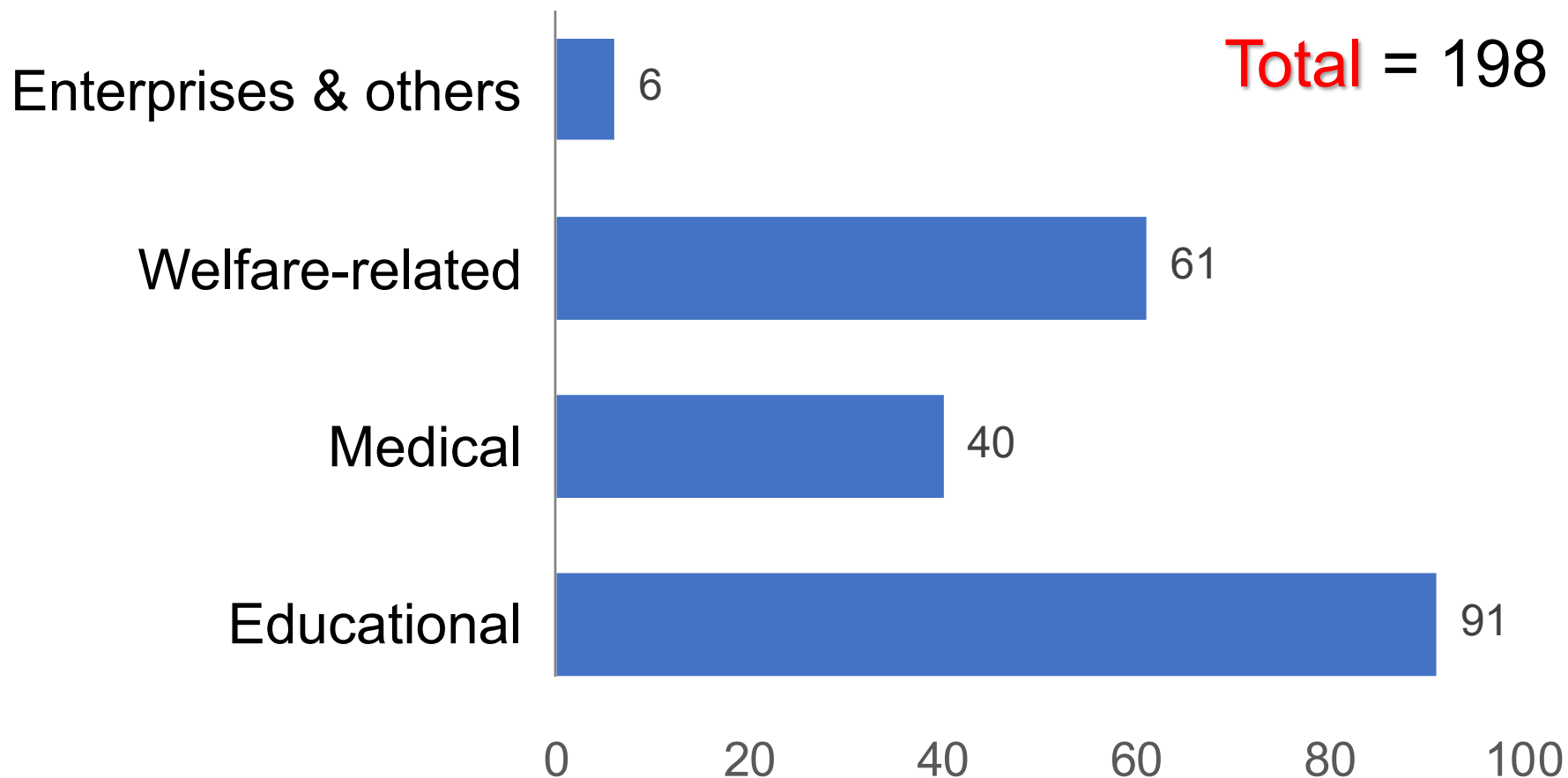
4. Reginal collaboration is essential!

Change of category rate of outreach destinations after 2015



4. Reginal collaboration is essential!

The number of different facilities, organizations and institutions that NITSC supported from 2013 to 2023



4. Regional collaboration is essential!

Collaboration with schools for special needs education

Student/
Family

Class
teacher

Teacher
for coordination

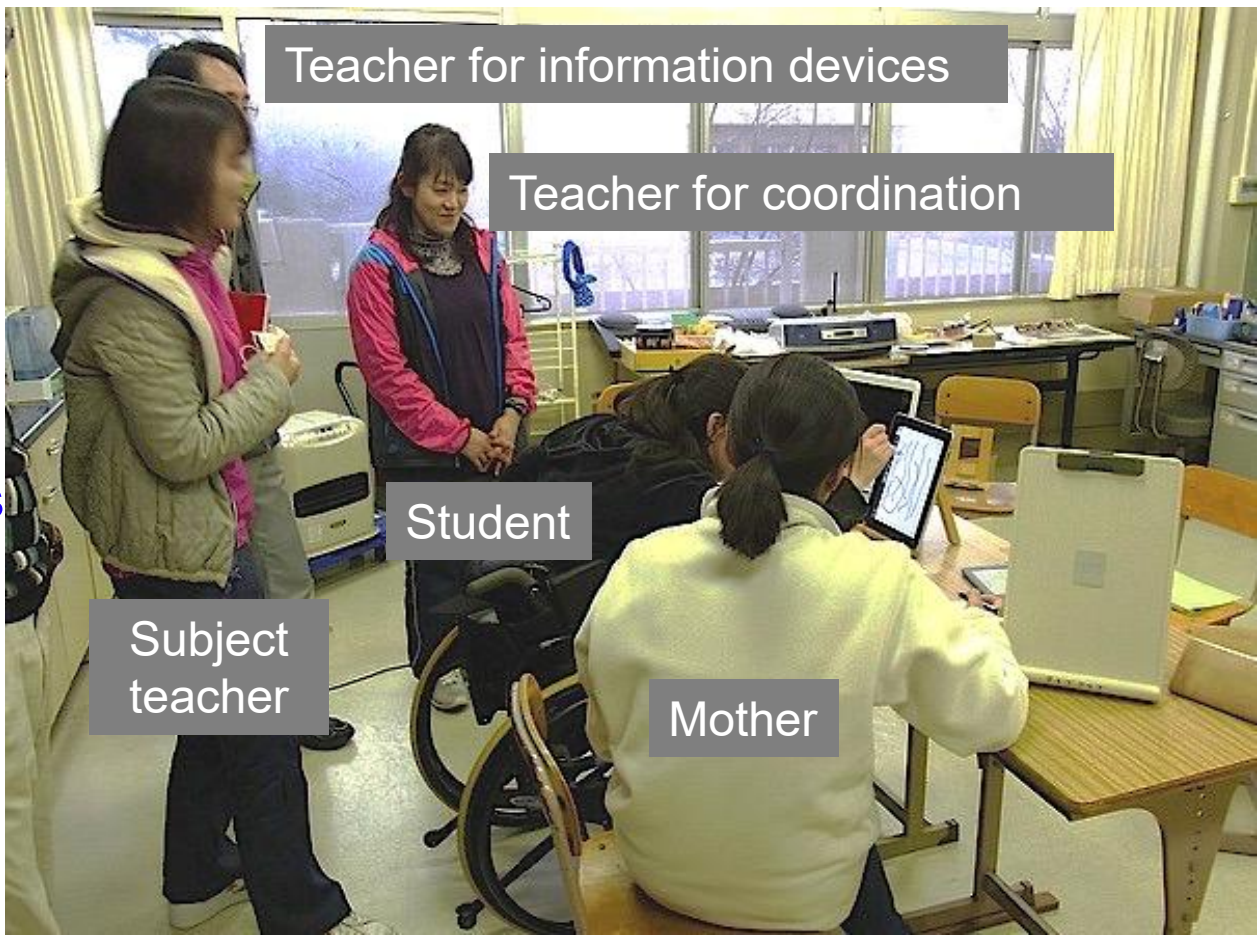
Subject
teachers

OT



新潟市障がい者 IT サポートセンター

A female student with cerebral palsy in the 1st year of high school



Teacher for information devices

Teacher for coordination

Student

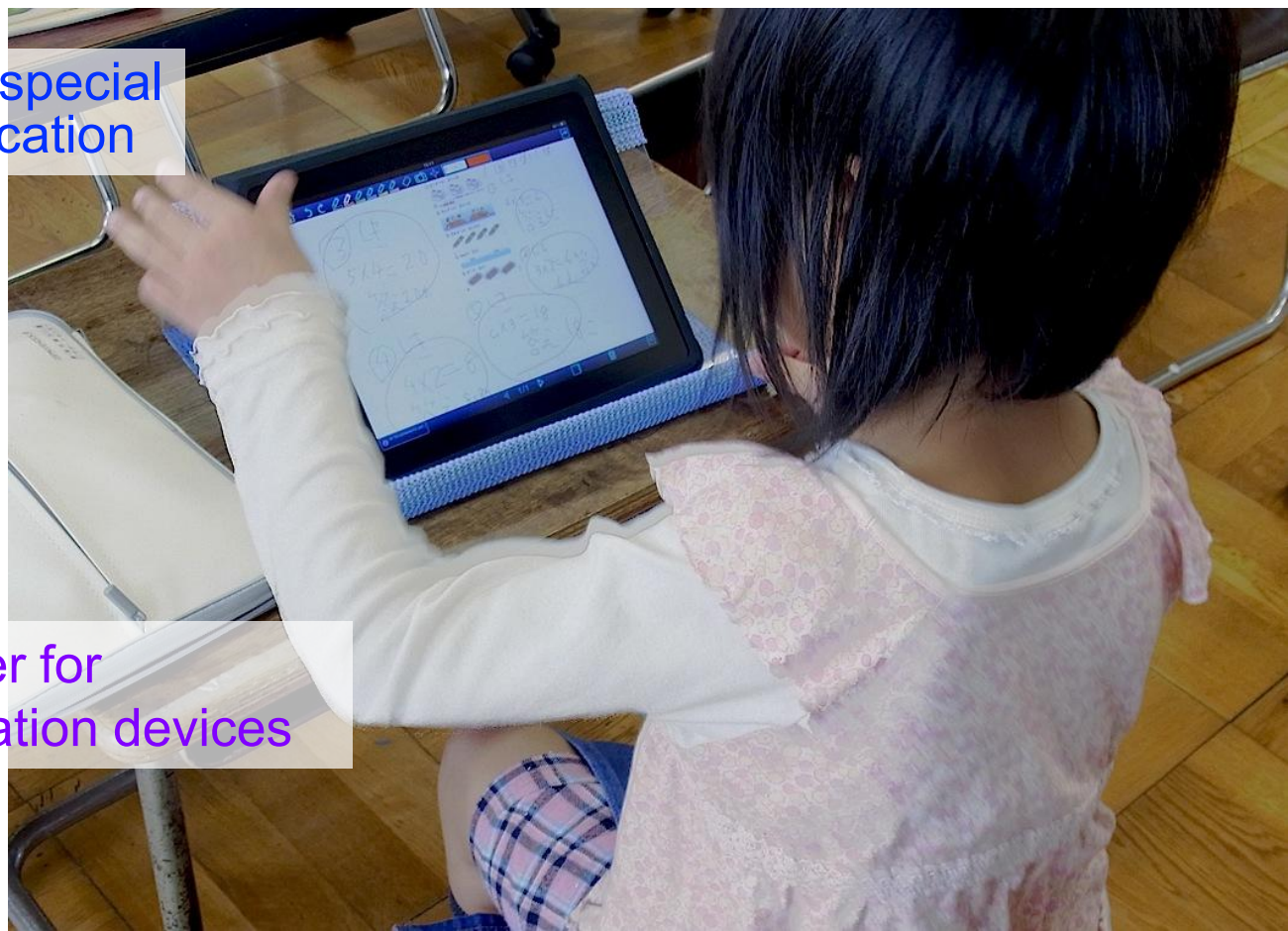
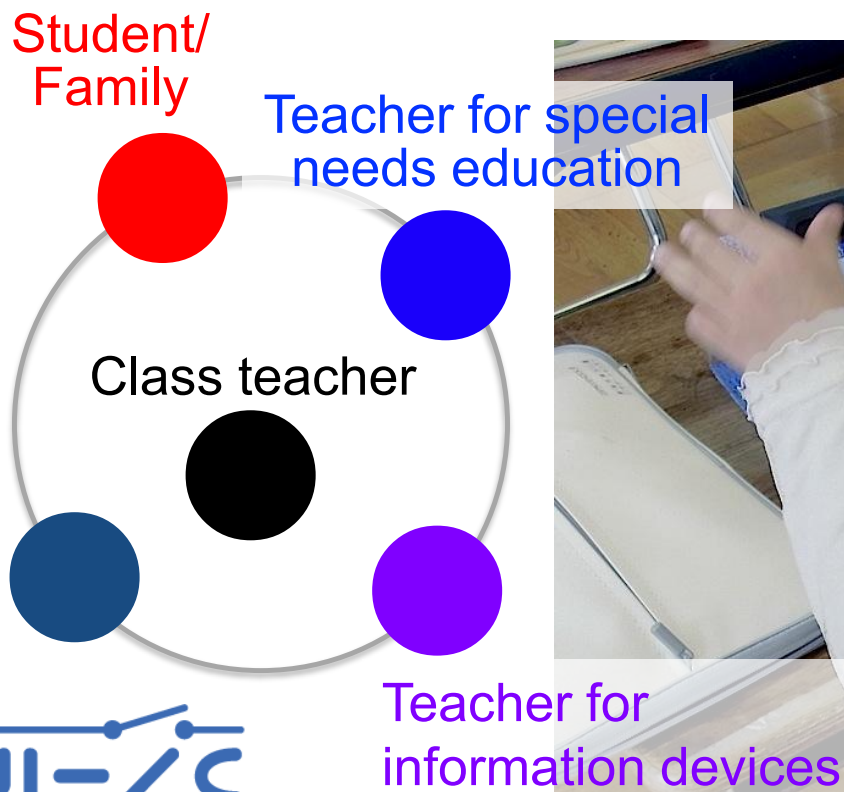
Subject
teacher

Mother

4. Regional collaboration is essential!

Collaboration with schools for special needs education

A female student with cerebral palsy in the 2nd year of primary school



4. Regional collaboration is essential!

Collaboration with schools for special needs education

A female student with cerebral palsy in the 2nd year of primary school

Student/
Family

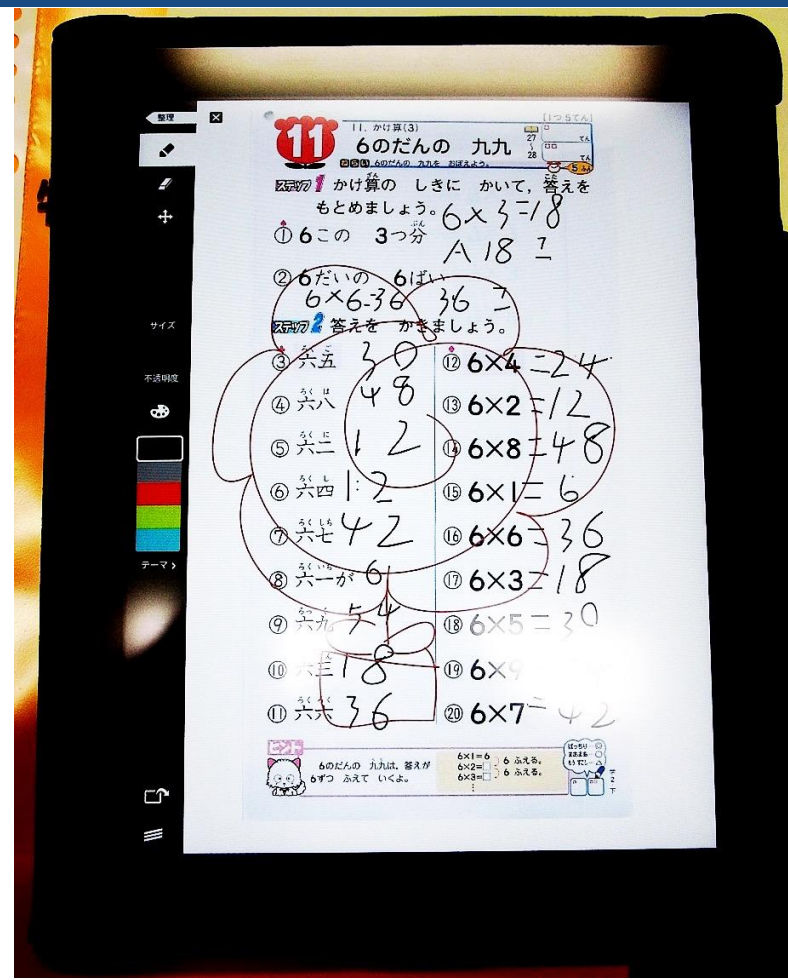
Teacher for special
needs education

Class teacher

Teacher for
information devices



新潟市障がい者 IT サポートセンター

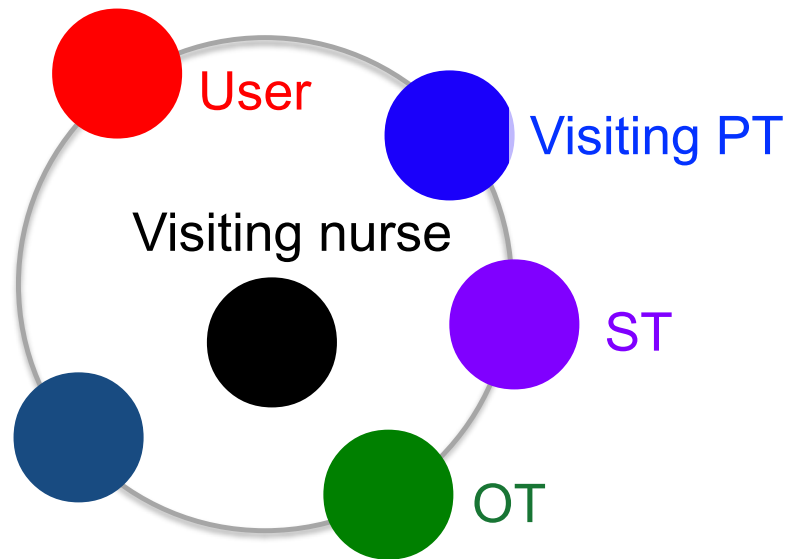


iPad^R-based support for mathematics and Chinese characters

4. Regional collaboration is essential!

Collaboration with co-medicals

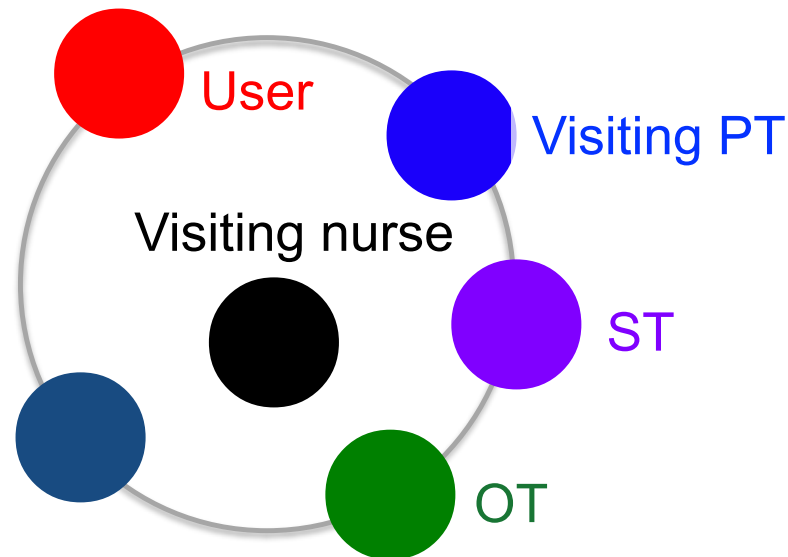
- **User:** A 5-year-old preschool boy with Werdnig-Hoffmann disease
- **Request:** A visiting nurse asked us “Is it possible to support him in the same manner as with ALS patients?”



4. Regional collaboration is essential!

Collaboration with co-medicals

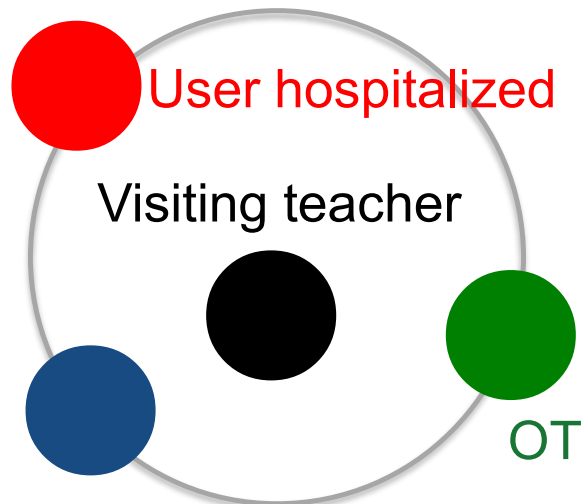
- **User:** A 5-year-old preschool boy with Werdnig-Hoffmann disease
- **Initial target:** To play a game as well as to use a communication device, both using a single switch



4. Regional collaboration is essential!

Collaboration with school for special needs education and hospital

- **User:** A 13-year-old male student with a muscular disease in the 1st year of junior high school (hospital class)
- **Initial target:** To use a communication device as well as to study characters, both using a single switch



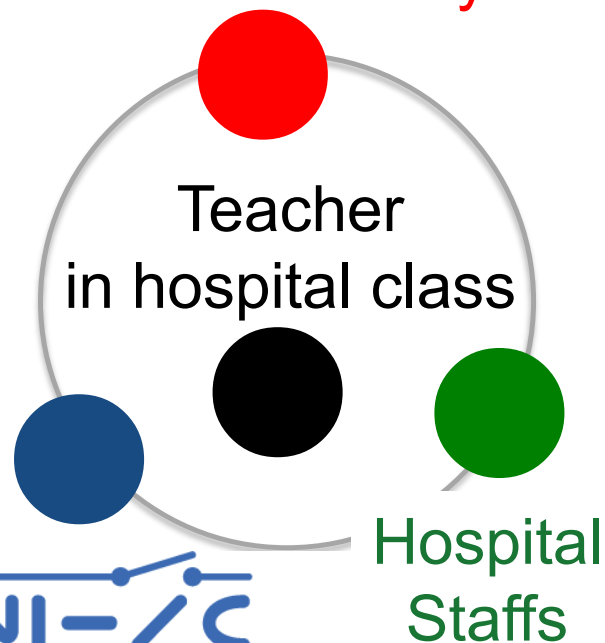
4. Regional collaboration is essential!

Collaboration with hospital school

Hospital Class : Education for severely-retarded female children in post-neonatal intensive care unit (NICU)

Target: To make her understand cause-and-effect relationship by operating a flash light using a switch

Student/family



新潟市障がい者 IT サポートセンター



4. Regional collaboration is essential!

Collaboration with school for special needs education

The “Box” project: To provide schools regularly cooperated with NITSC with a set of basic ICT-based assistive devices stored in a box, so that teachers can use an assistive device immediately when he or she want to apply it to a student.



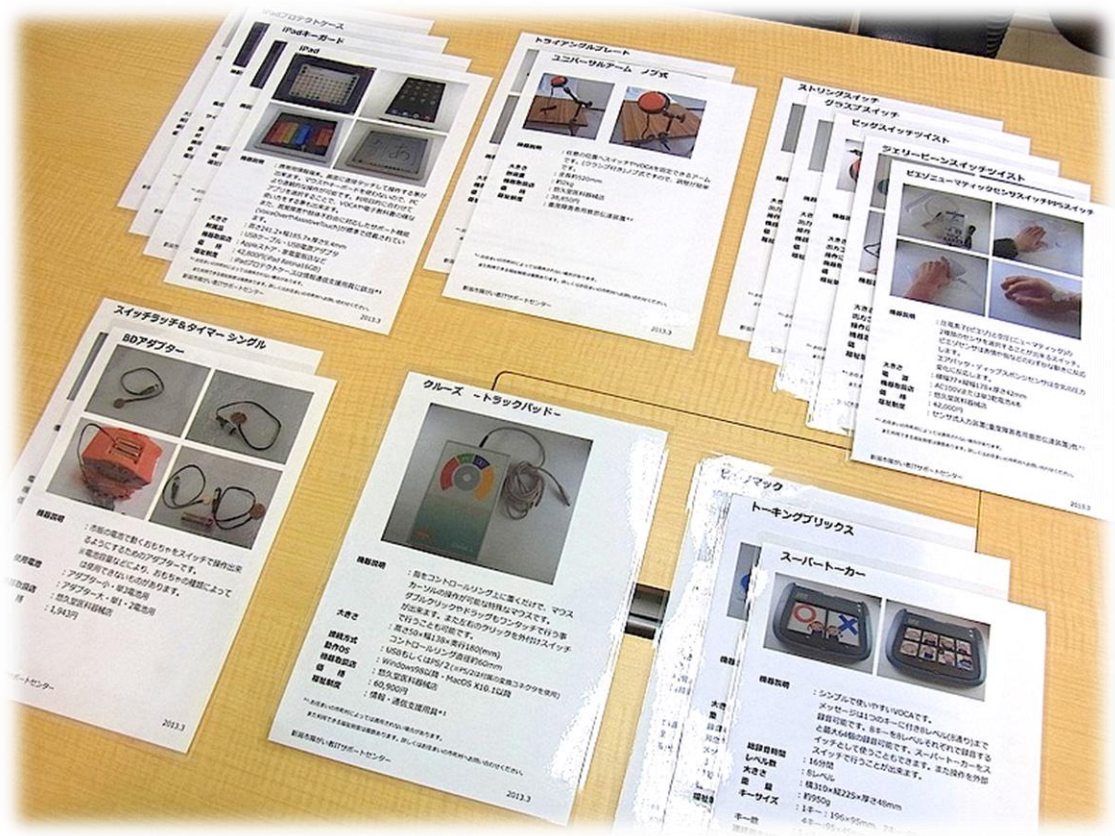
4. Regional collaboration is essential!

Collaboration with school for special needs education

The “Box” project: To provide schools regularly cooperated with NITSC with a set of basic ICT-based assistive devices.

Data sheets: describing basic information of each device including specifications, price and usage.

Data sheets



4. Regional collaboration is essential!

Collaboration with school for special needs education

The end of the project: Recently, education ministry of Japan provided a budget to buy such devices for schools for special needs education. Then the box was returned to NITSC.



4. Reginal collaboration is essential!

Collaboration with low-vision outpatient



To introduce assistive devices to the visually impaired in the medical and dental hospital of Niigata Univ. once or twice a month

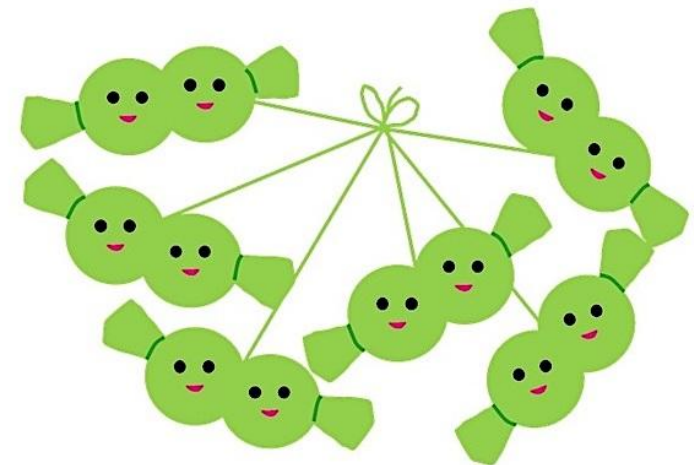
4. Regional collaboration is essential!

Collaboration with low-vision-related facilities

Rehabilitation Network for persons with visual impairments in Niigata, named "SASADANGO Net" (2013~) :

- Niigata Eye Support Center (Prefectural Association and Information Center for visually impaired persons)
- Independence support center for the disabled, named "Oasis"
- Niigata YOTSUBA school for visually, auditorily and mentally impaired children
- Low-vision clinic in Niigata university medical and dental hospital
- NITSC

"SASADANGO Net"



4. Reginal collaboration is essential!

Collaboration with low-vision-related facilities

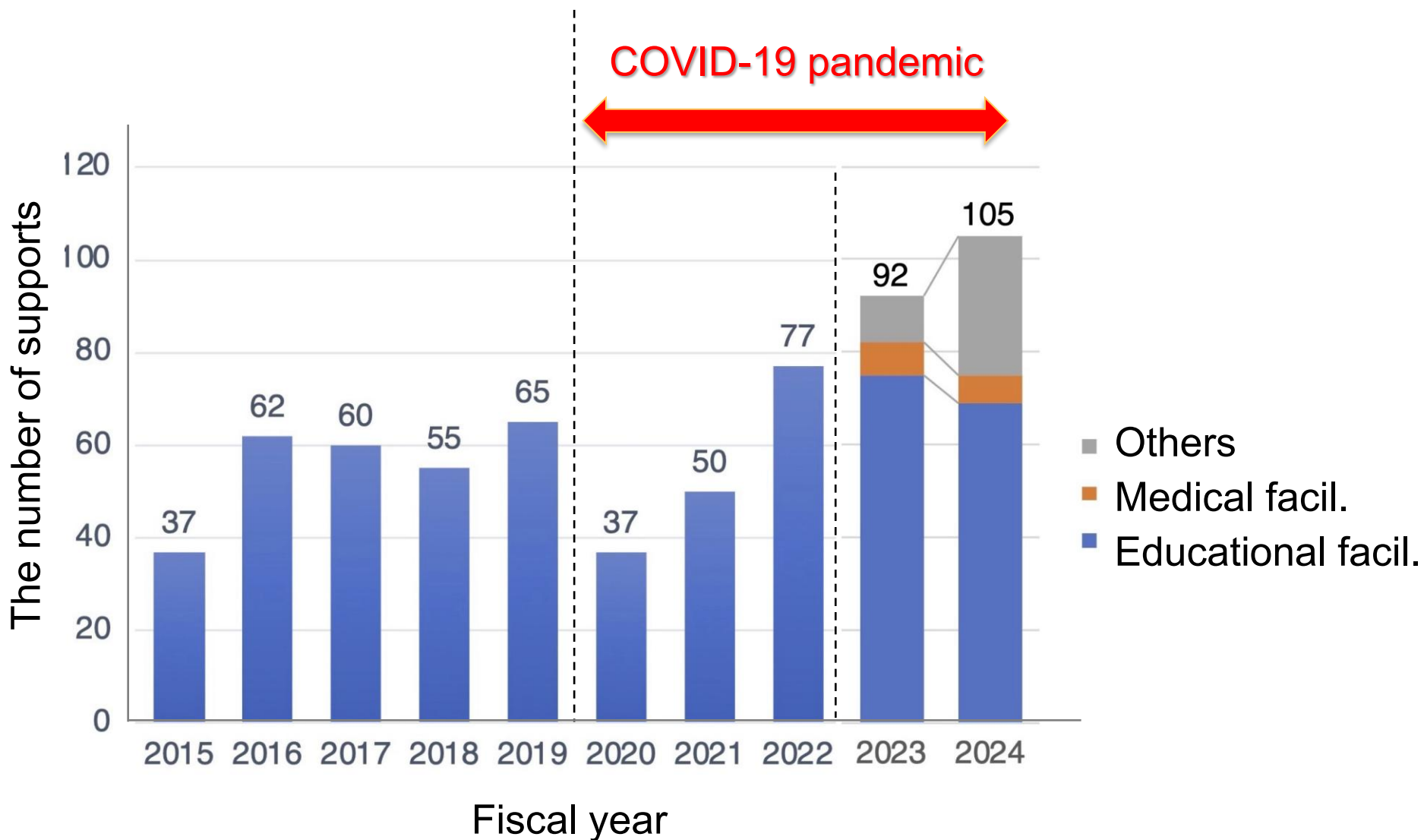
Leaflet : A table relating patients' needs to regional facilities, which is distributed to all ophthalmic clinics in Niigata prefecture.

Every member facility that accepted a patient's need introduces the best facility to be able to cope with it to the patient.

	生活のこと	読み書きができない	外出が大変	家事や身の回りのことが大変	学校の勉強が大変	仕事や身の回りのことが大変	スマホなどの情報機器を使いたい	役に立つ福祉制度を知りたい	不安・気持ちが沈む	生きがい・楽しみがほしい	<p>「ささだんごネット」参加団体は 連携しながら見え方に不自由や不安を感じている方々を応援します</p>  <p>中身はぎゅーしり、おひとつでも、いくつでもどうぞ</p> <p>< 関連団体 ></p> <ul style="list-style-type: none"> 新潟県視覚障害者友好協議会 新潟県中途視覚障害者連絡会 新潟県盲導犬ユーザーの会 新潟盲ろう者友の会
<p>お困りのことを右記からお選びください そして、下記の対応する団体までお電話ください</p> <p>「ささだんごネットのリーフレットを見ました」とお声かけくださいね!</p>											
<p>にいがたアイサポートセンター 新潟市江南区亀田向陽1-9-1 新潟ふれ愛プラザ内</p> <p>社会福祉法人 新潟県視覚障害者福祉協会 (025)381-8118 平日 9時30分～16時 (年末年始以外)</p>	●	●	●						●	●	<p>視覚に障害のある方やご家族など、視覚障害に関わる方の日常生活での困り事のご相談に応じる他、便利な用具や制度などのご紹介も行っています。また、専門職員が来館・訪問等により、白杖歩行やパソコン・スマートフォンの操作・日常生活動作などの支援を行います。その他視覚に障害がある方の交流の場などのご紹介も行っています。</p>
<p>新潟県視覚障害者情報センター (025)381-8111 火～日曜 9時～17時 (年末年始以外)</p>	●				●				●	●	<p>視覚に障害のある方に向けた各種情報提供を行っています。音声や点字の図書・雑誌の貸出を行う他、ご希望の活字文書の音声化、点字化、テキストデータ化も行います。電話受付、郵送貸出(無償)ができますので、直接来館ができない方もご利用いただけます。その他お役立ち情報の配信や、録音図書再生機器などの操作支援も行っています。</p>
<p>NPO法人障害者自立支援センターオアシス (地域活動支援センターオアシスの樹) (025)267-8833 月・火・水・木・土曜 10時～16時 (年末年始・夏季休暇以外) 新潟市西区松美台3-20 メール: aisuin@fsmnet.or.jp</p>	●	●	●	●	●	●	●	●	●	●	<p>見えにくくなったために今後の生活・仕事・学業などにお悩みの方を、視覚障害リハビリ専門職、医師、医療職、当事者スタッフが支援します。心のケア・歩行指導・パソコンデジタル教室・福祉制度・拡大読書器・調理・体操・文化活動など行っています。誰もがほっとでき、助け合い交流しながら学び、楽しくリハビリ訓練できる場を提供します。</p>
<p>新潟よつば学園 相談支援部 もう教育部門 (025)250-0428 平日 9時～17時 (年末年始以外) 新潟市東区竹尾2-2-1</p>	●	●	●	●	●	●	●	●	●	●	<p>県内唯一の視覚障害教育の部門がある学校です。目や見え方に心配のあるお子さん・保護者・関係者や、理療の学習をして職業自立を目指したい成人の方など、0歳のお子さんから大人まで一人一人のニーズに応じた支援を行います。相談支援や情報提供、研修会の開催などをします。疑問や不安、心配事などお気軽にご相談ください。</p>
<p>新潟市障がい者ITサポートセンター (025)262-7774 メール: nitsc@eng.niigata-u.ac.jp 平日 10時～18時 (年末年始・夏季休暇以外) 新潟市西区五十嵐2の町8050 新潟大学大学院自然科学研究科 内</p>	●								●	●	<p>障がいにより低下した身体機能を補う「支援機器」の活用をお手伝いしています。主な支援内容は、パソコンを中心とした情報通信機器(ICT)の整備支援、ICTを利用した就労・就業・就学の相談・支援、ICTの具体的な購入法・操作法に関する個別相談です。自立生活にICTを活用してみませんか。</p>
<p>新潟大学医歯学総合病院 眼科 ビジョンサポート外来 (025)227-2615 金曜 10時～16時 新潟市中央区旭町通1-754</p>	●	●	●	●	●	●	●	●	●	●	<p>見え方に不自由や不安のある方のための外来です。目の状態とお悩みに応じた視覚補助具の選定、視覚障害をカバーする拡大読書器やスマートフォン・タブレットなどの紹介や使い方指導、福祉情報提供、身体障害者手帳や障害年金の相談などを行います。予約制のため受診希望の方はお問い合わせください。</p>

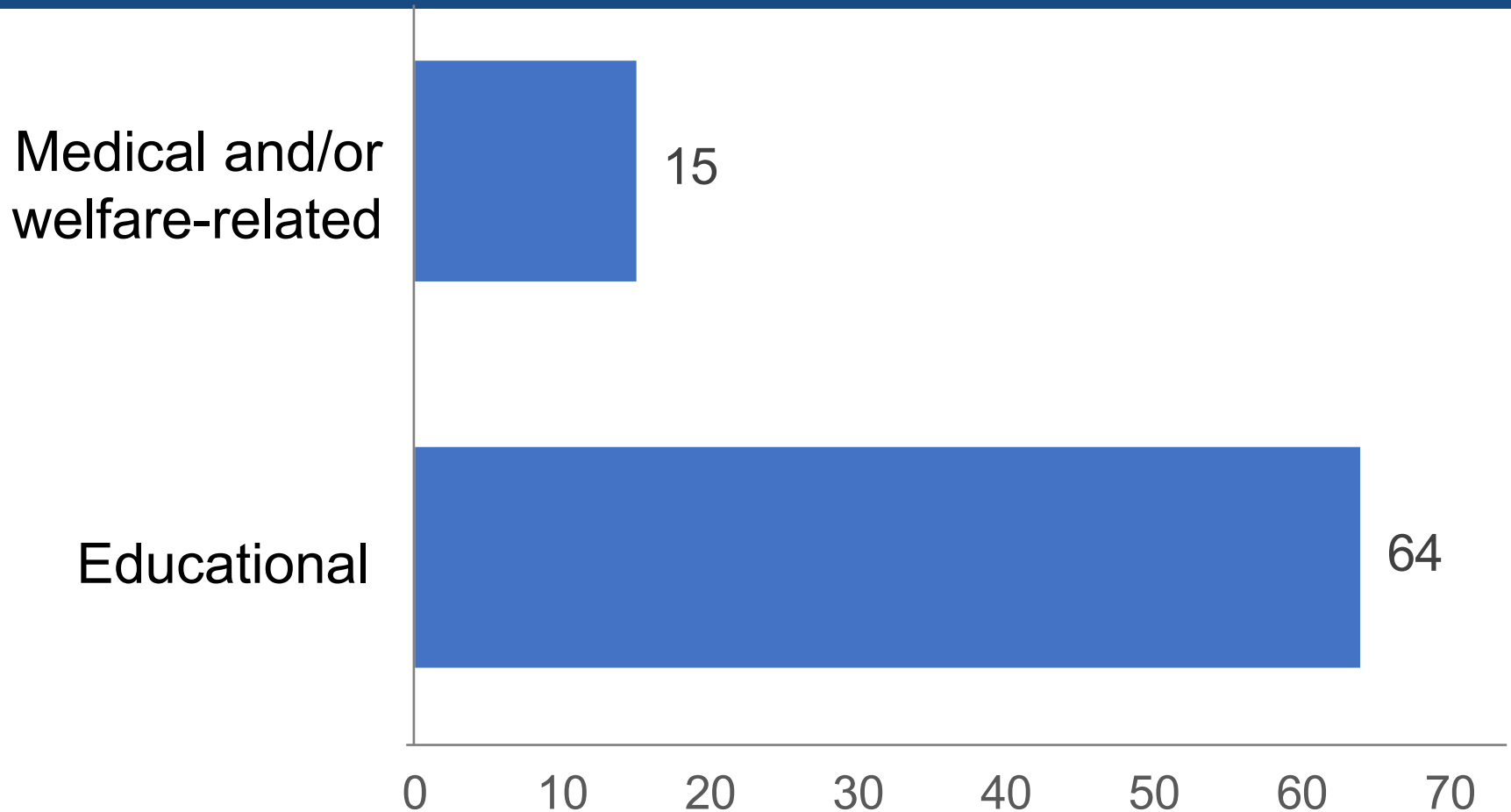
4. Reginal collaboration is essential!

Lectures and Workshops after 2015



4. Regional collaboration is essential!

The number of different facilities, organizations and institutions where NITSC gave lectures and/or workshops from 2013 to 2023



4. Regional collaboration is essential!

A seminar course on PC for the visually impaired: An extension course of Niigata University



Managed in collaboration with Department of Biocybernetics, Niigata Univ. and the association for persons with visual impairments, Niigata Prefecture and NITSC

4. Regional collaboration is essential!

Lectures and/or workshops for school teacher

NITSC has been carrying out lectures and/or workshops in various schools from the beginning:

1. Introductory courses: general, specific and parental courses,
2. Exhibition of aids and workshop,
3. Workshops for making simple switches and VOCAs.



4. Regional collaboration is essential!

Lectures and/or workshops for school teacher

NITSC has been carrying out lectures and/or workshops in various schools from the beginning:

1. Introductory course: general, specific and parental courses,
2. Exhibition of aids and workshop,
3. Workshops for making simple switches and VOCAs.



4. Regional collaboration is essential!

Necessity of collaboration with regional educational committee

Serious problem in Japanese education: Most teachers have a little knowledge and experience of ICT-based AT.

Necessity of systematic training of teachers in collaboration with regional educational committee and NITSC



Lecture course for teachers managed by educational committee and NITSC

4. Regional collaboration is essential!

Collaboration with regional societies of co-medicals

Two-day training course for developing ICT-supporters for persons with disabilities (2014 - 2022):

Planned and held by:

- NITSC
- Pref. society of occupational therapists
- Pref. society of speech and language therapists



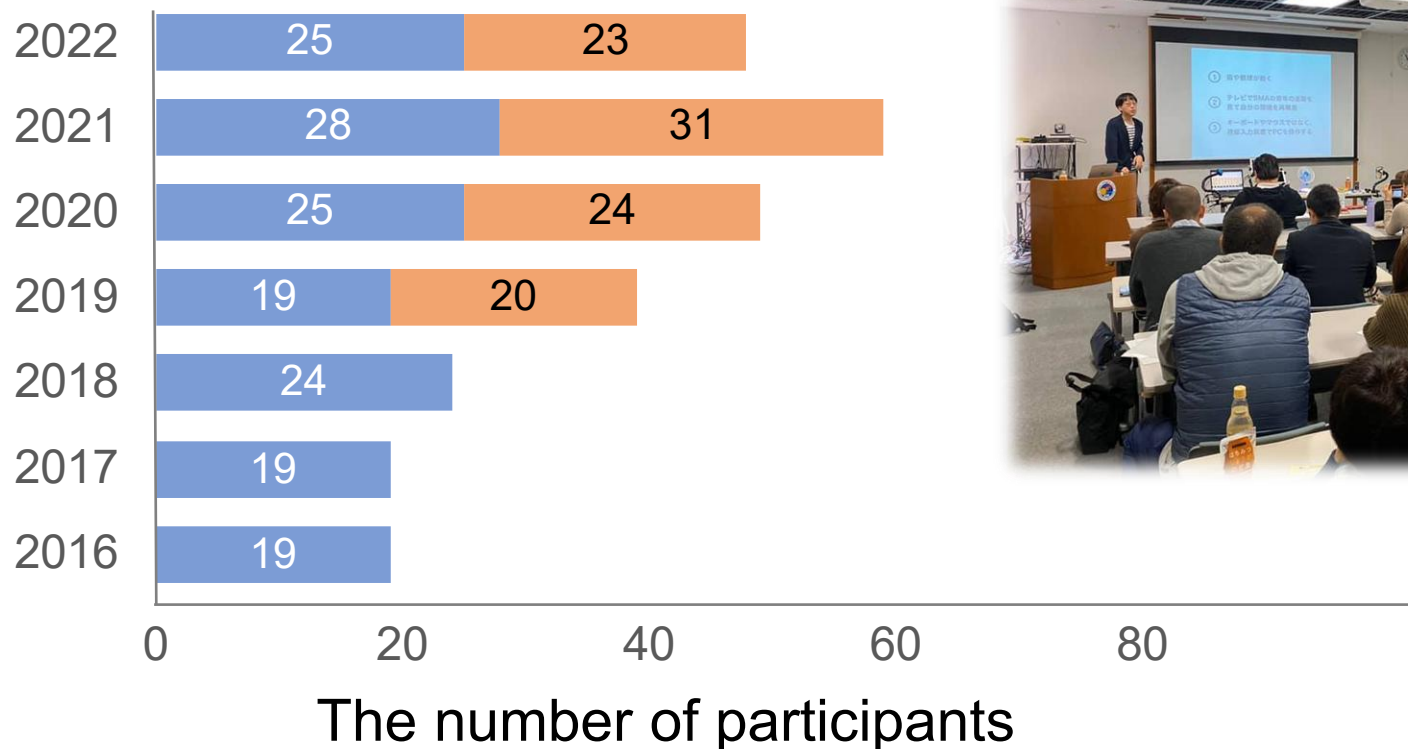
4. Regional collaboration is essential!

Collaboration with regional societies of co-medicals

Two-day training course for developing ICT-supporters for persons with disabilities (2014 - 2022):

■ 1st ■ 2nd

Fiscal year



4. Regional collaboration is essential!

Collaboration with regional support center for persons with intractable diseases

One-day lecture and workshop for communication support for persons with intractable diseases (2016 -)

Planned and held by:

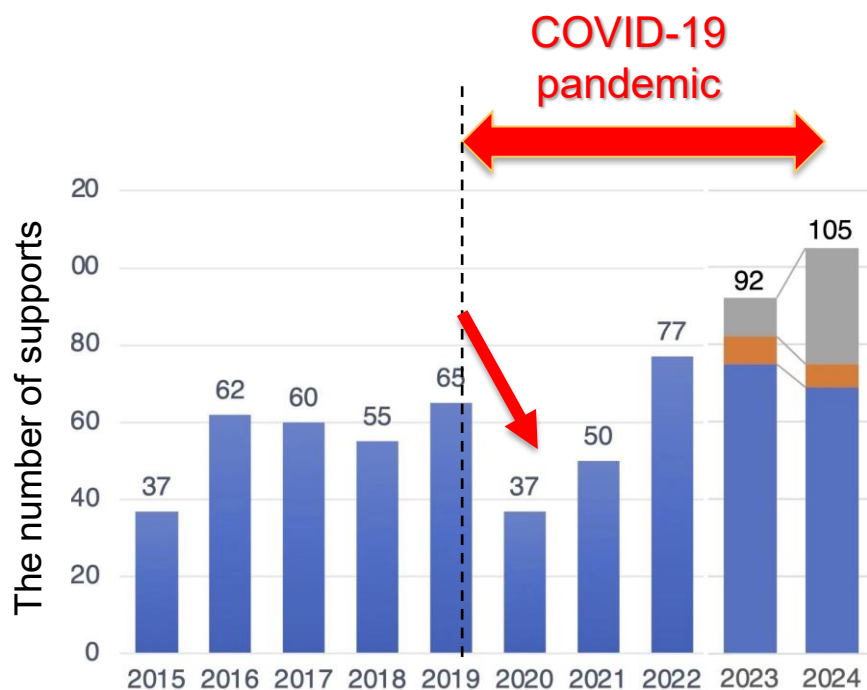
- Niigata consultation support center for intractable diseases
- Pref. society of occupational therapists
- West Niigata central hospital
- NITSC



4. Regional collaboration is essential!

YouTube Video Broadcast to compensate a drop of lectures and workshops due to COVID-19 pandemic

Lecture and workshop



Free video broadcast via YouTube channel "ATtv"



<https://www.youtube.com/c/ATtvjp>

4. Regional collaboration is essential!

YouTube Video Broadcast to compensate a drop of lectures and workshops due to COVID-19 pandemic

Start: November, 2020

Registration: 133 videos

Play Time: 30-60 minutes/video

Classification:

- OS accessibility
- Developmental disorders
- Physical impairments
- Visual impairments/ Low vision

Free video broadcast
via YouTube channel **“ATtv”**



<https://www.youtube.com/c/ATtvjp>

4. Regional collaboration is essential!

YouTube Video Broadcast to compensate a drop of lectures and workshops due to COVID-19 pandemic

The last 3 videos:

#131: Updated Look to Speak^R,
an eye-gaze communication
app for Android terminals

#132: Blue2 FT^R: a new switch
interface by AbelNet^R

#133: OrCam MyEye 2^R: an
wearable AI device, capable
of reading characters

Free video broadcast
via YouTube channel “ATtv”



<https://www.youtube.com/c/ATtvjp>

4. Regional collaboration is essential!

YouTube Video Broadcast to compensate a drop of lectures and workshops due to COVID-19 pandemic

Aimed at providing:

- Supplementary teaching aids for individual support,
- Teaching aids for preparation and review of lectures and workshops.

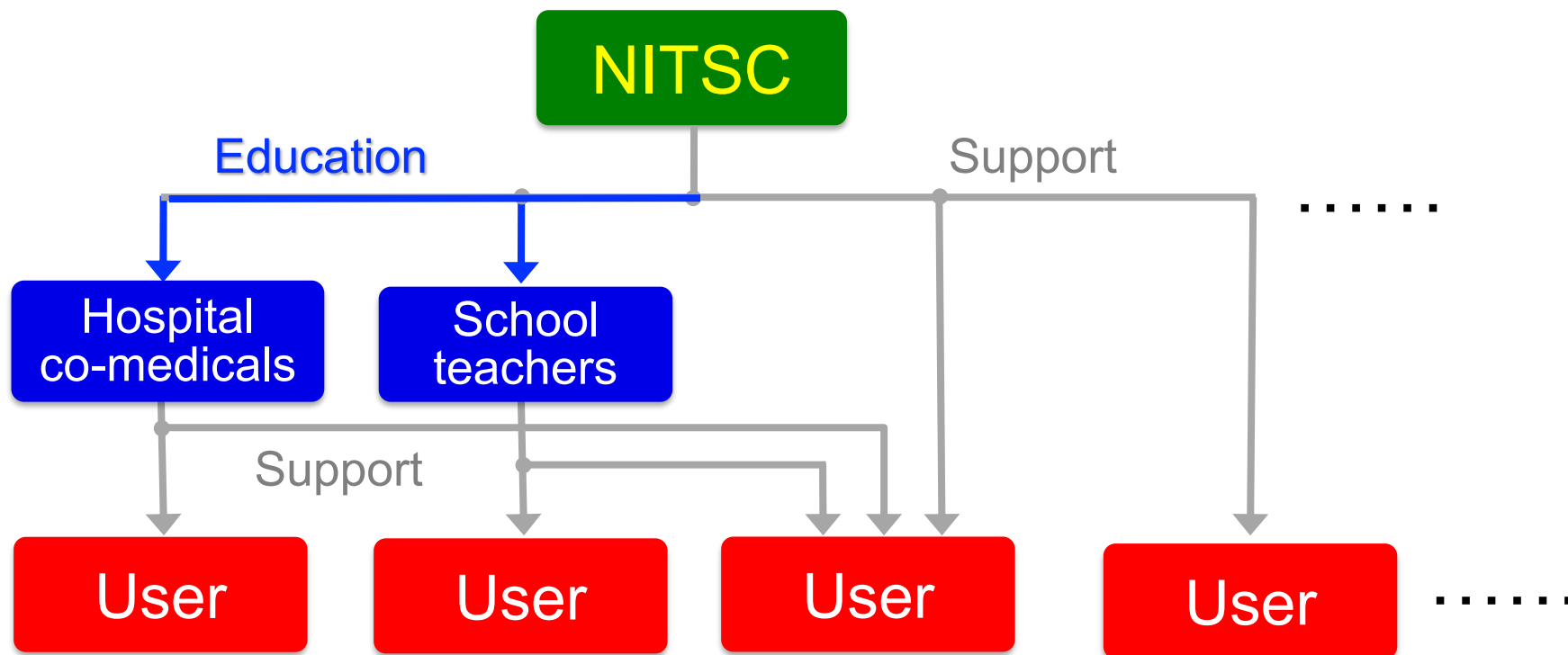
Free video broadcast via YouTube “ATtv”



<https://www.youtube.com/c/ATtvjp>

4. Regional collaboration is essential!

Summary: ICT support scheme of NITSC in collaboration with relating regional facilities

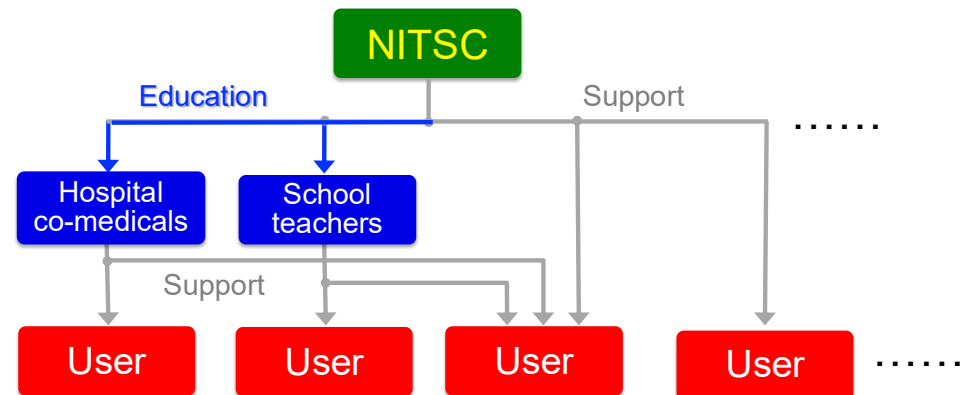


NITSC educates co-medicals and teachers on ICT-based AT, as well as supports individual users in order to increase the number of users supported directly and indirectly.

4. Regional collaboration is essential!

Summary: ICT support scheme of NITSC in collaboration with relating regional facilities

- **Collaboration with hospital, school and educational committee**
 - Lectures and workshops in hospitals and schools
 - Training of teachers in cooperation with educational committee
 - Training course for teachers and/or parents in schools for special needs education
- **Collaboration with Prefectural Societies of OT and ST**
 - Training course for ICT-based assistive device supporters (OT, PT, ST, MSW, etc.)





Thank you for kind attention!

