Utvärdering av Rättsmedicinalverkets forskning 2021–2024

Sammanfattning på svenska och rapport på engelska
2025-03-10

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Innehållsförteckning

Inledning

Rättsmedicinalverket (RMV) har som nationell aktör inom sina verksamhetsområden en särställning. Sedan den 1 juli 2020 har RMV därför i uttryckligt uppdrag från regeringen att bedriva forskning inom dessa områden.

Målet med RMV:s forskning är bland annat att ta fram resultat som utvecklar kvaliteten och säkrar det vetenskapliga underlaget i verksamheten samtidigt som man säkerställer en fortsatt hög kompetens inom myndigheten.

Som ett led i forskningsuppdraget togs en ny forskningspolicy fram och ett externt vetenskapligt råd inrättades. Det vetenskapliga rådet består av oberoende experter inom myndighetens olika ämnesområden rättsgenetik, rättskemi, rättsmedicin och rättspsykiatri. Rådet har till uppgift att kvalitetssäkra och utvärdera RMV:s forskning samt att granska förslag till större forskningsprojekt.

Rådet består för närvarande av chefsjuristen Markos Stavroulakis (ordförande), docenten Jukka Palo, professorn Antti Sajantila, docenten Elisabeth Leere Öiestad, professor emerita Lisa Ekselius samt RMV:s forskningsstrateg Robert Kronstrand.

Under 2025 har en utvärdering genomförts av den forskning som bedrivs såväl inom respektive avdelning som på myndigheten som helhet. I samband med utvärderingen har det vetenskapliga rådet presenterat ett antal rekommendationer till RMV som ett stöd i det fortsatta arbetet med att utveckla forskningsverksamheten inom myndigheten.

Rådets rekommendationer återfinns i denna rapport.

Övergripande rekommendationer

Strategisk planering

Utöver kunskapsluckor bör planeringen av forskning även beakta kommande förändringar i samhället, lagstiftning samt den tekniska utvecklingen inom området. Det rekommenderas starkt att RMV upprättar en åtgärdsplan för kontinuitet. Ytterligare en senior forskare inom rättsgenetik bör prioriteras, då endast en person för närvarande täcker detta område. Eftersom professorerna inom rättsmedicin närmar sig pensionsåldern rekommenderas att myndigheten intensifierar insatserna för att upprätthålla detta.

Stimulera och öka forskningssamarbeten med andra forensiska och ”icke-forensiska” forskargrupper såväl nationellt som internationellt.

Finansiering

Det rekommenderas starkt att modellen som RMV och Linköpings universitets har etablerat för startfinansiering utvidgas till andra universitet där myndigheten har verksamhetsorter och befintliga gemensamma universitetstjänster.

I takt med att forskningskvaliteten och -produktionen mognar kan en ökning av ansökningar till Vetenskapsrådet och eventuellt även European Research Council förväntas.

Expandera befintliga strukturer för ekonomisk planering, resursfördelning och uppföljning till samtliga avdelningar.

Forskningsmiljö

Vidareutveckla akademiska karriärvägar med tydliga utvärderingskriterier.

Inom ramen för en anställning kan utökad forskningstid erbjudas utifrån prioriterade forskningsprojekt.

Samarbeta med och motivera universitet att etablera kombinationstjänster och adjungerade tjänster vid universitet där myndigheten har verksamhetsorter.

Överväg att prioritera internationella postdoktorala tjänster.

Spridning och implementering

Skapa en publiceringsstrategi med målsättning att nå tidskrifter med högre ”impact factor” samt förlag och tidskrifter med gott anseende.

Expandera befintliga strukturer för implementering av forskningsresultat till samtliga avdelningar.

Scientific Advisory Board Report

At the National Board of Forensic Medicine (RMV), there is a Scientific Advisory Board (SAB) with three main responsibilities: to assess the scientific quality and feasibility of prioritized research projects; to review the results of the National Board of Forensic Medicine's research and evaluate their relevance in relation to the authority's fields of expertise; and to provide expert advice on scientific matters related to the activities of the National Board of Forensic Medicine.

The appointed members of the SAB are:

Professor **Antti Sajantila** is a Forensic Medicine specialist with over 30 years of experience in clinical practice, postmortem investigations, and forensic genomics. At the University of Helsinki, he directs Forensic Medicine education and oversees the training of future specialists. He serves as part-time Chief Medical Examiner at the Finnish Institute for Health and Welfare. His academic work focuses on DNA analysis in forensic and archaeological contexts. Sajantila is an Ordinary Member of the Finnish Society of Sciences and Letters. Internationally, Professor Sajantila has contributed to disaster victim identification and forensic investigations of human rights abuses in e.g., Peru, Colombia, Tanzania, Brazil, and Nepal. He is Vice-President of the European Council of Legal and Forensic Medicine and a Board Member of the Independent Forensic Expert Group.

Professor Emerita **Lisa Ekselius** completed her medical school and research training at Uppsala University. After her PhD she held various positions funded by the Swedish Research Council until she was appointed Faculty Professor in Psychiatry at Uppsala University, combined with a position as senior consultant in Psychiatry at Uppsala University Hospital, in 2004. She retired in 2021. After her retirement, she was instrumental in forming a research centre for Womens' mental health at Uppsala University. Her main research area is personality and personality disorders, and their relation to and impact on other medical conditions. She is a member of the Royal Society of Sciences in Uppsala and an honorary member of the Swedish Psychiatric Association.

Adjunct Professor **Jukka Palo** works as the research manager of the Forensic Genetics Team at the Finnish Institute for Health and Welfare and as a university researcher in the Department of Forensic Medicine at the University of Helsinki. Originally a population geneticist, Palo has over 20 years of experience in Forensic Genetic research and casework. His research has focused on bridging population genetics, human evolutionary history, and forensic genetics. Palo has also contributed to applied forensic genetics, including the identification of Finnish WWII soldiers and disaster victim identification (DVI), and he currently serves as vice-chair of Interpol's DVI Forensic Genetics Sub-Working Group. Palo is also the current chairman of the Finnish Society of Forensic Medicine.

Associate Professor **Elisabeth Leere Øiestad** is Senior Scientist in the Department of Forensic Sciences at Oslo University Hospital and associate professor at the Department of Pharmacy, University of Oslo. She is regional representative for the International Association of Forensic Toxicologists (TIAFT), on the editorial advisory board of the journal Sustainable Chemistry and Pharmacy and a committee member in the EuChemS-DAC Sample Prep Network. Her research interests are analytical forensic toxicology, micro sampling, membrane extraction, and development of methods, especially for new psychoactive substances or alternative biological matrices.

Markos Stavroulakis, Chairman of the SAB, holds a Swedish law degree (LL.M) and Master of European Law. He currently serves as General Counsel at Stockholm university providing strategic legal support across higher education law, contract law, intellectual property law, GDPR, the Ethical Review Act and public law and EU-law. Before his current position he held the same position of General counsel at the Public Health Agency of Sweden.

Robert Kronstrand, the internal member of the SAB is Research Strategist at the National Board of Forensic Medicine and the Chief Toxicologist at the Agency's Department of Forensic Genetics and Forensic Toxicology. He is also Adjunct Professor in Forensic Toxicology at Linköping University.

In January 2025, the Director General gave the SAB the assignment to evaluate the research conducted between 2021 and 2024. The evaluation was led by the Research Strategist and performed in close cooperation with the research coordinators at each Department, Forensic Genetics (RG) and Forensic Toxicology (RK), Forensic Medicine (RM), and Forensic Psychiatry (RP). The evaluation has mainly been based on the document Self evaluation of the National Board of Forensic Medicine's research between 2021-2024 provided on October 3d. Supporting documentation was also provided at that time, including

- Bibliometric analyses for each department executed by the Linköping University Library,

- Complete publication lists for each department, and

- Complete lists of teaching assignments, supervision of students and post doctors, conference presentations, and external funding.

The SAB met research coordinators and the three Department chiefs and the Director General on November 6th in Stockholm.

The SAB met in Stockholm on December 16th to inform the Director General of the report progress and to discuss the main recommendations.

Key recommendations

Strategic planning

In addition to knowledge gaps, include also views of forthcoming changes in society, legislation as well as technical advancements when planning research.

It is highly recommended that RMV creates an action plan for contingency. An additional senior researcher in forensic genetics should be prioritized as only one position covers this field. Since professors in forensic medicine are close to retirement, it is recommended that the agency intensifies efforts to facilitate the continuation of these.

Stimulate and increase research collaborations with other forensic and “non-forensic” research groups nationally and internationally.

Funding

It is highly recommended that the RMV and Linköping University seed funding system should be used as a model with other universities where the Agency has operational locations and existing university joint-positions.

In line with the increasing maturity of the research quality and output an increase in applications to the Swedish Research Council and possibly the European Research Council could be expected.

Expand existing structures for economic planning, allocation, and follow-up to all departments.

Research environment

Further develop academic career-path possibilities with clear evaluation criteria.

Within the framework of an employment offer extended research time based on prioritized research projects.

Collaborate with and motivate universities to establish “joint positions” and adjunct positions at universities where the agency has operational locations.

Consider prioritizing international postdoctoral positions.

Dissemination and Implementation

Create a publication strategy aiming for higher impact journals and publishers/journals with good reputation.

Expand existing structures for implementation of research results to all departments.

Department of Forensic Medicine

1. Research and the Research Quality

1:1 Relevance of the research

The Department has maintained a consistent annual output of scientific publications (12–17 articles) between 2021 and 2024. In addition, it has contributed a book chapter, editorials, and letters to the editor. Research has been published across all major subfields of forensic medicine, spanning entomology, anthropology, and methodologically demanding areas such as toxicology and single-cell transcriptomics. Findings related to child abuse have also been actively disseminated. Collectively, these publications are relevant and address several of the key knowledge gaps identified in the field.

1:2 Quality of the research

The quality of the Department's scientific output is reflected in its publication profile. Approximately two-thirds of all articles published during the assessment period appeared in journals ranked within the top 25% of their respective fields. Notably, two publications were accepted in top leading international journals, Nature and Nature Communications, underscoring the Department's capacity to contribute to research of the highest scientific impact.

The proportion of publications with RM researchers in first or last authorship positions declined during 2021–2022 but has shown a positive trend thereafter. When averaged across the entire period, RM researchers held first or last authorship roles in roughly two-thirds of all publications, indicating sustained scientific leadership.

Field-normalised performance indicators further demonstrate strong research impact. Fourteen percent of the Department's publications fall within the top 10% most cited globally, and the field-normalised citation rate for this group is 1.1. For comparison, corresponding values among 13 indexed Swedish universities during 2019–2022 ranged from 8.4% to 13.6% and from 0.94 to 1.25, respectively. These results indicate that RM meets or exceeds national benchmarks for publication quality and citation performance.

In contrast, the level of international collaboration remains comparatively modest. Forty-five percent of RM publications involved international co-authors, whereas the corresponding range among the 13 Swedish universities was 58.3%–76.3% during the same reference period. This suggests that international engagement may be considered as one key area for further development.

1:3 Implementation of research results

Between 2021 and 2024, the Department produced several noteworthy publications with direct relevance for the development of future operational routines. These outputs are well aligned with the strategic interests and

operational premises, reflecting a sustained commitment to generating evidence that informs and enhances the organisation's core functions. It is essential that this activity be maintained, and that the involvement of senior scientific staff, such as professors, be further strengthened to ensure continuity, quality, and long-term strategic impact.

1:4 Strategies, priorities and future research plans

The Department has established a research strategy for the period 2021–2026, outlining the procedures for initiating, anchoring, and implementing new research projects. Research priorities have been defined to ensure that scientific activities directly support and strengthen the Department's statutory assignments. Within this framework, the department has identified three key research areas for targeted development: age estimation, clinical forensic medicine, and cause-of-death investigation. Each of these areas includes several sub-domains that provide a structured basis for future research planning and capacity building. A substantial proportion of these strategic priorities has already materialised during the period 2021–2026, as evidenced by the Department's publication activity.

Recommendations

Strengthen international collaboration in forensic medicine

-Although direct comparison between RM and Swedish universities may not be entirely equitable, increased international collaboration would significantly enhance the exchange of ideas, materials, and data. Broader international engagement would also elevate Department visibility and scientific impact within the global forensic community. Such collaboration provides long-term strategic advantages and contributes to securing the Department's position as a leading institution in the field.

Expand academic career-path opportunities with clear evaluation criteria

-As in research-oriented institutions, the establishment of transparent and structured academic career pathways is essential for attracting and retaining young, ambitious, and mobile scientists. Strengthening these pathways will support long-term competence development within the Department.

Deepen engagement with universities on the future of academic forensic medicine

-Universities are the primary training environments for highly motivated medical students, many of whom represent the future recruitment base for the Department. While formal agreements with universities are typically concluded at higher administrative levels, active collaboration with academic departments and professors is crucial. These individuals play a central role in promoting the field, guiding students toward residency opportunities, and fostering research-oriented career trajectories relevant to the Department.

2. Conditions for Research

2:1 Organization and staffing

The Department operates across six locations: Göteborg, Linköping, Lund, Stockholm, Umeå, and Uppsala. Its staff comprises forensic pathologists, forensic odontologists, forensic medicine assistants, administrators, investigators, statisticians, development officers, and biomedical analysts. At the end of the evaluation period, the Department employed 214 individuals, of whom 55 worked part-time.

The Department hosted two professors with joint appointments at Uppsala University and Karolinska Institutet, as well as one university lecturer affiliated with Lund University. During the period, one staff member was promoted to docent, while another docent left RM. Five staff members served as principal supervisors for ongoing doctoral projects within the Department.

Among the employees, 19 staff members hold doctoral degrees, and 12 of them conducted their own research projects. An additional 11 staff members pursued part-time doctoral studies, distributed across five units. The majority of both the doctoral candidates and the degree-holding researchers are forensic pathologists.

2:2 Funding

The Department has succeeded in maintaining a stable financial foundation for its research activities. During the evaluation period, 9 of 25 submitted grant applications were successful, corresponding to a success rate of more than one-third. In total, SEK 187,885,000 was requested, and SEK 11,167,000 was awarded, representing approximately 6% of the total amount applied for. The majority of the awarded funding is administered through Karolinska Institutet (KI) (> SEK 8 million), compared with the Agency's own share (> SEK 3 million), underscoring the strategic importance of continued collaboration with KI and securing the future of the professorship and other academic people in KI joint positions.

A further observation is that most grant applications were submitted by senior researchers. This may indicate a potential risk that resources—and consequently career-development opportunities—for younger researchers could diminish over time. The RMV–Linköping University funding mechanism provides an important avenue for early-career researchers within the Agency to obtain seed funding; however, it is not sufficient to support larger, long-term research projects.

2:3 Research infrastructure

The Department has developed a well-articulated research strategy, which is uncommon among forensic medicine institutions, and the strategic direction is both clear and strongly supportive of research development. The quantitative indicators are impressive; however, it is evident that in any forensic organisation, routine casework largely determines the operational tempo. It

therefore remains somewhat unclear to what extent protected research time is realistically available for young MDs in specialist training. In this context, the development of structured career pathways within RM—integrating both routine postmortem / clinical forensic medicine responsibilities and research opportunities—would be highly beneficial and would likely serve as an important incentive for younger staff members to engage in research activities.

Recommendations

Since RMV provides from its most parts excellent conditions and materials for research consider development of research database/biobank.

-A known and well curated database / biobank will promote both national (including clinical medicine, pharmacology, toxicology etc) and international collaboration with other ambitious research groups in the field.

It is highly recommended that the RMV and Linköping University seed funding system (SOFO) should be used as a model with other universities where RMV has operational locations and existing university joint-positions.

-The current system functions well but may also be perceived as somewhat exclusive to Linköping even though researchers from the entire Agency are eligible. Establishing comparable collaborative funding arrangements with additional universities would therefore be advisable, as this would broaden access to research resources and strengthen the overall research environment within the Department and RMV.

Create joint positions between RM and local universities offering excellent possibilities for young senior researchers to build up their own research projects and be attached to potential students.

Emphasis on attracting more international postdocs, since they are mostly those who drive high-level science.

3. Research culture

3:1 Publication strategies

In the self-assessment, a formal publication strategy at the Department level does not appear to be articulated. Instead, decisions regarding publication practices probably have been left to senior researchers on a case-by-case basis.

3:2 Recruitment and opportunities for early-career researchers to develop their independence

To support recruitment, the Department has introduced several initiatives aimed at young, research-minded individuals, including the possibility of a dedicated “research month,” participation in monitoring programmes, and laboratory retreats. In addition, protected research time has been allocated, and peer-networking meetings have been established to strengthen collegial

exchange. It remains to be evaluated how effectively these measures function in practice, how systematically their outcomes are followed up and how routine work and research time are balanced.

3:3 Academic and professional networks and collaborations

The Department maintains collaboration agreements with Karolinska Institutet, Umeå University, Linköping University, Göteborg University, and Lund University. At KI, Uppsala, and Lund, these collaborations are formalised through joint academic positions, while in Linköping the forensic pathologists have particularly strong opportunities to engage in forensic laboratory research. In practice, however, many of these agreements appear to function primarily to sustain forensic medicine as a teaching discipline. While this is valuable, it may not be sufficient to attract the most ambitious medical graduates to pursue specialization in forensic medicine at RM.

According to the Leiden Ranking 2024, the degree of international collaboration among the 13 indexed Swedish universities during 2019–2022 ranged from 58.3% to 76.3%. In comparison, the Department's international collaboration rate for publications in 2021 was lower, at 45%. Nevertheless, the Department has been well represented at Nordic and international forensic medicine meetings, contributing posters, short communications, and oral presentations and is considered one of the leading forensic medicine Departments in Europe, and the professors and well recognized experts world-wide.

3:4 Research in relation to teaching

Educational activities are distributed across ten universities: Karolinska Institutet, the University of Gothenburg, Linköping University, Lund University, Umeå University, Uppsala University, Örebro University, Lund University of Technology, the Police Academy, Stockholm University, and Durham University. Teaching in forensic medicine at Swedish universities has been carried out by seven forensic pathologists and one professor of forensic genetics. In addition, five staff members have held combined teaching appointments or teaching assignments shared between RM and the universities.

University-level teaching in forensic medicine comprises approximately 20 lecturers, corresponding to an annual teaching effort of roughly 7,800 hours, equivalent to one full-time position. Forensic medicine has been integrated into a broad range of academic programmes, including medicine, law, dentistry, biomedicine, police education, and the master's programme in forensic science.

The self-evaluation describes an extensive set of teaching activities but does not assess how these efforts relate to ongoing research, nor how research findings and pedagogical developments are incorporated into teaching practice. While modern clinicians do not require exhaustive knowledge of all details in forensic medicine, they do need to understand how forensic principles can be applied in clinical settings. Consequently, all teaching should be grounded in the latest research and tailored to the needs of practising clinicians.

Recommendations

Consider formalizing a publication strategy

-follow up the rules and recommendations of the Universities, e.g., concerning ‘predator journals’

Establish stronger and more comprehensive collaborations with universities

-The Department should deepen its engagement with universities not only in relation to teaching, but also through substantive scientific collaboration. Such partnerships would enhance research capacity, broaden access to academic networks, and support long-term development of forensic medicine as an academic discipline.

Re-evaluate the structure and content of forensic medicine teaching

-A systematic review of the educational needs of different target groups—such as medical students, police trainees, and law students—is recommended. This would ensure that teaching is appropriately tailored, clinically relevant, and aligned with contemporary professional requirements.

Department of Forensic Genetics and Forensic Toxicology

1. Research and the Research Quality

1:1 Relevance of the research

The Department has had a very systematic approach to research, where focal topics have been defined by knowledge gap analysis to meet the needs of not only the laboratories and RMV, but also the global scientific communities of their fields.

The forensic genetic research focuses on developing new sets of informative DNA markers, and other vital components of DNA analyses, such as population level variation assessments and statistical interpretation of results. Another focal topic is the genetics behind sudden death. The research is well aligned with the needs of both RMV and the whole forensic genetic community, increasing its impact and helping its implementation.

For forensic toxicology the three areas new psychoactive substances (NPS), forensic toxicology and pharmacoepidemiology and postmortem metabolomics have been chosen as prioritized areas of research. For NPS especially the work relating to efficacy and potency of many different drug classes as well as concentrations in forensic samples has been very relevant for interpretation of toxicological findings both nationally and internationally. The results have been crucial for classification of NPS as drugs of abuse and impacted legal cases regarding sale of fentanyl analogues, showcasing the high relevance of the research. Likewise, a project described for forensic toxicology and pharmacoepidemiology using the unique registry data from routine cases elucidates intoxication patterns and risk factors and can aid the Department in interpretation as well as provide public knowledge needed to design preventive measures. The postmortem metabolomics work could with time provide a more exact time of death, which would be a large improvement to the means available today, and help elucidate cause of death in difficult cases as e.g. hypothermia or insulin poisoning.

1:2 Quality of the research

The Department has published 22 to 26 articles a year in the evaluation period, and approximately 80% has been open access publications. An increasing trend for publication in Q1 and Q2 journals can be seen. 15 % (17% for articles with international co-authors) of articles are among the top 10% cited articles, indicating a very high impact which is above the results from Swedish universities of 8.4 to 13.6 %. The field-normalized citation rate is 1.0 (1.2 for articles with international co-authors) in line with what is found for the 13 indexed Swedish universities (0.94 -1.25), while the number of articles with international co-authors of 53% is somewhat below the same Swedish universities (58.3% - 76.3%). The degree of international collaboration is still perceived as very high by the scientific advisory group, and the need for such collaboration will not necessarily be the same as for the universities. Two

forensic toxicology articles have received international recognition, again underscoring the high quality of research.

While there are no publications in the absolute top journals like Nature, RG has published predominantly in the top journals of its own field. This ensures visibility and wider implementation of the results. RK has published in a broader range of journals, but a trend towards higher impact journals is visible.

1:3 Implementation of research results

Implementation of research results at the Department is remarkable.

RG has been able to develop methods that can solve challenging questions but also allowing the stakeholders to ask new kinds of questions. This resulted in that Sweden became the first country outside USA to use forensic genetic genealogy to solve a crime (in 2019). Especially the FORCE-panel is an approach now implemented in Sweden and internationally (including e.g. identifying human remains from Vietnam & Ukraine), and its utilization will most likely increase substantially. Also, the research on (genetic) causes of sudden death, highly relevant for the tasks assigned to RMV, has been implemented. Note however, that these investigations can be demanding and labour-intensive, as they rely more on the interpretation of results than on mere technical development.

RK's research results seem to have been implemented as far as possible. Published reference concentrations for elemental poisoning have improved diagnostic certainty and are used in routine evaluation of cases with suspected poisoning. Improved methods and interpretation based on chiral analysis of amphetamine as well as mass spectrometric analysis of alcohols and alcohol biomarkers have been implemented. As previously mentioned, many new drugs have been added to the prohibition list.

1:4 Strategies, priorities and future research plans

Research topics derive from knowledge gap analysis, focus on issues relevant simultaneously to RMV and to the scientific community. Furthermore, it appears as obvious that science has become an integral part of activities, which was one of the main aims of the strategy.

In RG, the research has prioritized the development of new marker systems, such as the FORCE-panel, and the background information and statistics vital for successful use of the panel. The future research is planned to encompass developing the now developed methods further, which is a very appropriate goal, since the implementation of the new methods outside Sweden is only at its infancy.

As mentioned in 1:1 focus areas of research for RK has been selected: NPS, forensic toxicology and pharmacoepidemiology and postmortem metabolomics. The research strategy has resulted in a vision for 2026. Continuation of the focus areas are suggested, although new areas might be

added. New techniques for expanding the NPS studies to GABA and NMDA receptors as well as increase the work with *in silico* models have been initiated. Combination of the very successful areas of NPS and metabolomics could increase the understanding of NPS. To bring the metabolomic field forward to implementation in routine forensic case work should be a long-term goal, and research should include applications as well as interlaboratory comparison of results. Analysis of alternative matrices such as oral fluid and dried blood spots could constitute a new area of research in forensic toxicology.

Recommendations

When planning forthcoming research, include also views (guesses) on forthcoming changes in society, legislation etc. that might affect the routine tasks of the Department.

Continue the successful cooperation with LiU in SOFO. Consider if SOFO seed grants or dedicated Ph.D. positions could enhance parts of the research portfolio with less activity such as analytical toxicology.

The Department should maintain the high degree of open access publication and aim to publish in journals with high impact factors. To avoid Journal of Analytical Toxicology completely as it is a Q3 journal is however not advisable due to the very high relevance for forensic toxicology. To divide the bibliometrics in two categories, forensic genetics and forensic toxicology, would make it easier to evaluate based on field.

The Department has leading experts on hair analysis. Expanding the work to other more unconventional matrices such as oral fluid or dried blood spots, as suggested, could be a good way forward. As strong collaboration already exists with international groups very proficient in dried blood spot analysis (forensic group at Ghent University) or oral fluid (Oslo University Hospital) this could also instigate more international collaboration.

2. Conditions for Research

2:1 Organization and staffing

RG: The self-evaluation delivers a view of a routine laboratory firmly based on research, that is actively conducted by the employees. The research output is excellent and widely implemented but also raises a concern as many of the achievements seem to centralize on one researcher. This can be risky for RG and for RMV, and it is good to remember that even the brilliant scientists are subject to cosmic laws and have only 24 hrs each day. Broadening the front of active researchers by ensuring career paths for the newly defended doctors or by activating other research-educated personnel could perhaps lead to even better results.

The list of supervisors (Tabell 2.1 & 2.3) catches the eye: among the 13 supervisors only 2 are women. Working to promoting both male and female researchers should be a priority.

In the evaluation period 17-21 employees have been involved in research. All areas have senior personnel, in total three associate professors (docent) and two professors. Seven PhD students have been funded by the Department, whereof two in cooperation with forensic medicine. In addition, 11 external PhD students mainly at LiU have been supervised by RG/RK personnel. Forensic toxicology and pharmacoepidemiology have had three internal and one external PhD student, NPS has had four external, postmortem metabolomics has had two internal and two external PhD students, while forensic genetics has had one internal and four external students. As a part of the Department strategy to increase international collaboration at least one international post doc or visiting researcher have been employed at all times. NPS and postmortem metabolomics are organised as research groups, while forensic genetics and forensic toxicology and pharmacoepidemiology work is project based.

2:2 Funding

The funding base is variable and not easy to grasp. This is, however, very typical. As with infrastructure, the well-established collaboration with LiU and the joint SOFO is very important for attracting funding.

A total of 55 grant applications from small travel grants to large strategic applications of 15 – 36 MSek has been delivered, and 45 has received funding with a 42% success rate in monetary value (some projects still undecided). RMV (39,5 %) and LiU (51,2%) have been the main managers for the funding. The collaboration in SOFO has been a great success, with RMV receiving more money than they put in. Additionally, the use of this funding as seed grants have been strategically excellent, leading up to for instance the large grant for forensic metabolomics (13 MSek). A marked increase in applications, mainly from senior researchers, is reported.

2:3 Research infrastructure

Research is closely tied to the routine tasks of the laboratories. This connection is bidirectional, the research and routine coevolve, making the implementation of results effective. This has downsides as well, as the main technical infrastructure is the same as is used for routine case work. This ensures high quality instrumentation but sometimes leads to reduced flexibility and availability. At RK a research lab exists, but is only used sporadically, and some of the research equipment is located at LiU. Hence, the collaboration with the LiU is an asset that cannot be overemphasized. In addition to resources, SOFO can offer a fruitful research ecosystem with critical mass of researchers and support for the junior researchers.

A structure for administrative support and follow-up with a research council, leadership participation and dedicated research coordinators is briefly described, indicative of a good and supportive structure for research administration.

Recommendations

In Forensic Genetics, aim at increasing the number of active researchers by ensuring career paths for fresh PhDs and/or by activating the other personnel.

The way the Department is organized has been successful so far, and to continue the cooperation in SOFO is highly recommended.

As routine work always needs to be the priority for an organisation like RMV, the possibility for dedicating instrumentation and/or technical personnel for research could be explored.

Increase funding for PhD students to enable at least one internally funded PhD student for each focal area and consider employing directly in PhD positions or increasing the time share used for PhD to facilitate faster and more continuous work with the PhD.

In line with the increasing maturity of the research an increase in applications to the Swedish Research Council and possibly even the European Research Council could be expected.

3. Research culture

3:1 Publication strategies

Although a clear publication strategy is not stated, it is given that RMV aims to publish open access and in Q1 and Q2 journals. An additional ambition is to increase the number of articles in high impact factor Q1 journals, as a measure for high quality research and possibly increased external funding. An increase can be seen for both the number of open access articles and articles in Q1/Q2 from 2021 to 2024.

3:2 Recruitment and opportunities for early-career researchers to develop their independence

The Department aims to identify and support early-career researchers. Increased research time and a supportive research environment is pointed out as key areas for investment, as well as an Agency wide career network supporting meritorious work. Five younger scientists have participated in this network. A SOFO network for young scientists is additionally mentioned. The collaboration with LiU is likely to advance early-career researchers by including them in a strong research environment, and increasing the number of PhD candidates possible to supervise.

3:3 Academic and professional networks and collaborations

The researchers are nationally and internationally well connected. Networking thus appears as highly relevant helping in directing routine, research and implementation of results.

At RG the collaboration include e.g. the Swedish police (“customer”), large number of universities in Sweden and abroad as well as several institutions researching and implementing the forensic genetic tools. Moreover, RG researchers have been very active in scientific and professional societies (esp. ESWG), which, together with their research, has made them regarded as authorities in the field. Collaboration agreements with Karolinska Institute, and the universities in Umeå, Linköping (LiU), Göteborg and Lund are mentioned, where especially the strategic collaboration with LiU has been exceedingly successful. Postmortem metabolomics has international collaboration with RIKEN Center in Japan, Oulu University in Finland, Aarhus University in Danmark och National Forensics Institute (NFI) in the Netherlands. Though not mentioned in the report, collaboration with other international groups like Ghent University in Belgium and Freiburg University in Germany can be seen from the publication list. RMV employees have or have had positions in several scientific organisations such as TIAFT (the International Association of Forensic Toxicologists), NAFT (Nordic Association of Forensic Toxicologists) and SOHT (Society of Hair testing). A large number of conference contributions (96) was reported during the evaluation period.

3:4 Research in relation to teaching

It is apparent that the teaching at the department is tightly linked with the routine and conducted by the researchers. Altogether 12 employees have delivered 115 teaching assignments, the absolute majority at LiU but additionally at Göteborg University, Stockholm University and Uppsala University. In addition to lectures, seminars and examinations the Department has responsibility for courses in analytical chemistry in medical applications and forensic chemistry. The teaching has received a large audience and very good student response. The main responsibility for the medical education in forensic science at LiU ensures correct knowledge about forensic topics by new doctors. The teaching at Göteborg University, Stockholm University and Uppsala University has been forensic genetics at an advanced level. Additionally, the Department has co-led a Ph.D. level course in statistical epidemiology at Jönköping University. Ten employees have supervised 21 Ph.D. students, and one researcher has supervised six post-docs. A total of 32 master and seven bachelor students have received supervision from various staff (12). A minor, but potentially very impactful form of teaching comprises courses and workshops arranged for colleagues and stakeholders.

Recommendations

An additional associate professor in forensic genetics should be prioritized as only one position covers this field.

Continued strong international collaboration is advised. The Department has been proficient in introducing early-career scientists to the international community, a tradition to uphold. This does of course necessitate funding and travel grants. The use of visiting post-docs could perhaps even be extended as this is a relatively easy way to lay the foundation for strong international collaboration.

Department of Forensic Psychiatry

1. Research and the Research Quality

1:1 Relevance of the research

The Department conducts research with a broad focus within the field of forensic psychiatry. The majority of projects already decided upon are clearly linked to identified knowledge gaps. (see 1:4).

1:2 Quality of the research

The proportion of articles published by researchers at the Department in Q1 journals over the entire period 2021–2024 is 41%. Five percent of the publications are among the most cited in the entire field (top 10%). The field-normalized citation rate is 0.6, which can be compared with 0.94 and 1.25 for the 13 indexed Swedish universities. Nevertheless, the Department is well represented internationally, with several important studies, as noted in the evaluation report of the Swedish Research Council from 2017. Many employees at the Department have national and international collaborations, even though these are not readily apparent from the research projects described.

1:3 Implementation of research results

During the assessment period, no methods, routines, or similar have been changed or implemented as a result of the researcher's own research. The Department lacks a clear structure for decisions and implementation of research results related to new working methods. However, as presented in the self-evaluation, there is a clear strategy for communicating one's own research results internally through seminars and courses.

1:4 Strategies, priorities, and future research plans

The research strategy is based on the Department's own inventory of knowledge gaps, to ensure that research resources are directed towards projects considered particularly important for the Department's area of activity. The two prioritized research areas are: 1) assessment and investigation methods, and 2) characteristics of the study population, outcome of assessments, and long-term follow-up. The Department has a documented vision for the coming years.

According to the self-evaluation, research interest has been high within the Department over the years, but mainly among doctors and psychologists. It has been assessed that currently there is no need for special recruitment efforts for these groups. However, research competence among primarily nursing staff, as well as forensic social investigators, has been identified as a priority area. The COMPFOR Research School, is considered a significant long-term contribution to improving research quality.

Recommendations

Stimulate and increase research collaborations with other forensic and "non-forensic" departments nationally and internationally (e.g., seminars, interdisciplinary research schools, interdisciplinary research projects). An example of such successful collaboration is the project *Frikänd efter rättspsykiatrisk undersökning*, initiated in 2024 and funded by Riksbankens Jubileumsfond, the Swedish National Board of Forensic Medicine, and Lund University.

The COMPFOR Research School, funded by the Swedish Research Council, is a very important contribution to increasing future research quality. In addition, an interdisciplinary forensic research school could be a suggestion for the future.

Develop a clear structure for the implementation of research results. Decide in parallel on an evaluation plan to secure adherence to newly incorporated routines and guidelines.

2. Conditions for Research

2:1 Organization and staffing

Since 2025, research has been organized into two research groups: Rättspsykiatri Göteborgs universitet (GU) and Forensisk beteende och neurovetenskap at Karolinska Institutet in Stockholm.

At the end of 2024, 21 employees were active in research. There is currently one professor with a joint position at GU, and three associate professors, of whom two hold adjunct lecturer positions. Furthermore, there are ten PhD researchers and seven PhD students. No postdoc positions are mentioned in the report. A further two employees hold doctoral degrees but were not active in research during the period. The self-evaluation has identified a need to secure the long-term regrowth of senior researchers, but there is no specific plan to do so.

2:2 Funding

A total of 51 grant applications (2021 – 2024) of varying sizes have been reported, of which 23 were approved and resulted in funding between SEK 5,000 and SEK 30 million, totaling SEK 59 million (of which SEK 30 million to the Göteborg research school), mainly managed by the respective universities.

2:3 Research infrastructure

The research infrastructure is currently under development. The analysis of how this is organized is not entirely easy to grasp from the self-assessment. There are a research coordinator and a deputy at each unit linking research and routine work. How these hold together in a formal structure is not clear.

There is a recent decision that doctoral students should be offered 50% actual time for research within the framework of their employment.

There is also a vision to introduce a clearer qualification incentive structure. An employee who wants to qualify faster may be a candidate for extended research time focused on prioritized operational projects or knowledge gaps. This would allow the Department to steer research in a desirable direction and to provide the greatest possible operational benefit, while at the same time allowing employees to qualify more quickly. This, in turn, would result in faster regrowth of senior researchers within the organization.

Recommendations

Create a skills ladder for career progression

Establish a plan for succession in order to secure the regrowth of senior researchers in the long term.

Collaborate and motivate universities to establish so-called joint positions and adjunct positions.

Offer extended research time to conduct prioritized research as part of the employment.

Consider employing postdoctoral fellows, international or own, instead of doctoral students in order to make better use of expertise and to create stronger career pathways.

Consider stimulating own doctors to do international postdocs. Doing an international postdoc is often a key factor in a successful research career. It provides an opportunity to collaborate with new researchers, learn new methods, and expand an international network, thereby strengthening research quality. There are specific grants, for example, from the Swedish Research Council and STINT, that allow recent doctoral candidates to stay at a foreign institution.

3. Research culture

3:1 Publication strategies

No specific publication strategies can be identified in the self-evaluation document.

3:2 Recruitment and opportunities for early-career researchers to develop their independence

See above

3:3 Academic and professional networks and collaborations

The Department has agreements on collaboration with GU and KI. Through these connections, the Department has research collaborations with researchers from several institutions. At GU, the collaboration is linked to the interdisciplinary center CELAM, which is part of the Department of Neuroscience and Physiology at the Sahlgrenska Academy. There is currently a collaboration agreement between the Department and GU, in the form of a faculty professorship in forensic psychiatry, co-funded by the Department.

The collaboration with KI is linked to the Center for Psychiatry Research (CPF) at the Department of Clinical Neuroscience. Furthermore, several employees have collaborations with universities and organizations both nationally and internationally.

3:4 Research in relation to teaching

Two employees have had formal employment with teaching assignments at universities during the period: One of them has a part-time assignment as director of studies for a graduate school, and the other has, within the framework of his professorship, taught for approximately 1/3 of the position.

Prior to the current evaluation, all educational efforts at universities carried out by research employees have been assessed. Each effort has been counted as a teaching opportunity regardless of whether it concerned an entire course or a single lecture. In total, 12 research employees have carried out 92 teaching opportunities. A large proportion of the teaching has been carried out by senior staff (including two who have retired). In contrast, junior staff with a PhD who do not yet hold an associate professorship have, with a few exceptions, only taught on isolated occasions. This is an obstacle to the continued supply of associate professors, since teaching at a university is required.

The majority of teaching is conducted at the undergraduate level, but advanced and postgraduate teaching is also conducted. Totally nine researchers have been assigned as supervisors to 28 PhD students.

In addition to the above, teaching is provided during the forensic psychiatry specialty training for doctors.

In summary, extensive teaching is carried out at various levels. The teaching appears relevant to forensic psychiatry as such. It is, however, unclear how all this teaching is financially compensated.

Recommendations

Create your own publication strategy within the Department to publish in well-respected, high-quality scientific journals. Prioritize preregistration of studies to avoid unnecessary research duplication, facilitate more efficient collaboration, and improve research quality.

Consider whether teaching can be organized, clarified, and coordinated to ensure that teaching assignments are distributed in the most appropriate way for both the Department and its employees, in both the short and long term.

Concluding remarks

The Agency's research quality, relevance and translational impact are strong across Departments. The Agency produces high quality, applied research that informs routine forensic practice and contributes internationally. Key factors have been focused knowledge gap driven priorities, successful university partnerships, and seed funding mechanisms.

To sustain and scale this success, we have given recommendations related to strategic planning, funding, research environment, dissemination, and implementation.

These measures will strengthen the Agency's resilience, international standing, and long-term capacity to generate and apply evidence that both supports statutory assignments and advances forensic medical science internationally.

On behalf of the Scientific Advisory Board, Linköping 2025-12-30

Robert Kronstrand

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