Poster 1

DO PHONE CALL REMINDERS IMPACT PATIENT NO-SHOWS AT AN INNER-CITY DERMATOLOGY CLINIC?

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Background: Same-day missed appointments, or patient no-shows, decrease accessibility, impact patient care and reduce provider productivity. Currently the average no-show rate in outpatient dermatology clinics is 17-30%. There remains a paucity of research examining how to minimize no-shows for inner-city clinics that service marginalized populations, many of whom face significant socioeconomic barriers to care.

Objectives: To determine the no-show rate at an inner-city dermatology clinic and assess whether the implementation of phone call reminders (PCR) reduces the no-show rate.

Methods: A retrospective medical record review was conducted to tabulate the number of clinic attendees and no-shows prior to and after the implementation of PCR. Average daily clinic no-show rates (DCNSR) were calculated and compared using Welch's test.

Results: The DCNSR prior to PCR was 45.7%. Phone call reminders were implemented over a 6-month period, of which 7 days were missed due to lack of administrative availability. The DCNSR after the implementation of PCR was not statistically significantly different at 36.7% (p=0.06). However, post hoc analysis excluding clinic days when reminders were not conducted, revealed a statistically significant lower no-show rate at 33.1% (p=0.01).

Conclusions: This inner-city dermatology clinic is greatly affected by patient no-shows, more so than what is quoted in the literature. In a realistic setting where reminders may be missed, our study revealed that PCR are not a statistically significant intervention. If done perfectly, however, PCR may be effective in reducing no-show rate. In the future, different interventions can be trialed to assess the impact on patient no-shows.

Category: Exploratory

Poster 2

STOKES VECTOR POLARIZATION SPECKLE ANALYSIS FOR IN VIVO SKIN LESION EVALUATION

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Background: Speckle is an optical interference pattern formed when laser light backscatters from a medium. Skin, as a translucent optical medium, produces highly complex speckle patterns. Skin surface and subsurface morphological properties both contribute to optical scattering that generates unique patterns, not just in light intensity distribution, but also in the speckles' polarization states. Polarization refers to the oscillation orientation of light waves and is a uniquely difficult optical property to measure due to its independence from optical intensity. The polarization state of light must be quantified by a four-element Stokes vector. To fully measure this Stokes vector and maximize the information gained from speckle pattern measurement, a novel device must be constructed.

Objective: This project introduces a device to measure the full polarization state of a speckle pattern from skin *in vivo*. Following acquisition, speckle properties quantifying both intensity distribution and polarization state are to be identified and linked to skin morphological properties through statistical, machine learning, and AI-driven methods.

Proposed Methods: The device will be constructed using a novel combination of liquid crystal polarization controllers and a pixel-polarization camera. Initial measurements on solid phantoms with controlled surface roughness and optical properties mimicking human skin will allow for understanding of differences in speckle due to surface and subsurface properties. Based on previous polarization studies, analysis of polarization speckle properties is expected to allow for quantifiable discrimination between malignant and benign tissues, for future applications in rapid cancer detection.

Category: Pilot/exploratory experiments

Poster 3

INTERNAL MEDICINE MEETS EXTERNAL MEDICINE: SURVEY OF DERMATOLOGY EDUCATION FOR INTERNAL MEDICINE RESIDENTS

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Introduction: Many systemic diseases present with cutaneous findings, yet there is a documented lack of dermatology training in internal medicine (IM) residency. We conducted a needs assessment survey to guide future dermatology education for IM.

Methods: A survey was sent to first, second, and third year UBC IM residents in 2021. A series of 9 questions were asked, including quantitative ratings of their experience and comfort levels in evaluating dermatologic presentations, such as "bullae" or "ulcers", and qualitative opinions regarding dermatology teaching.

Results: The response rate was 31% (53/171). In terms of residents' comfort levels, 70% (371/530) of clinical presentations were rated as "uncomfortable" or "very uncomfortable". On average, residents were most experienced and comfortable managing a "red leg" and least with "alopecia". With increasing seniority, residents encountered cutaneous diseases significantly more frequently ($p=.002$). Despite this, there were no significant differences in comfort levels based on level of training or previous experience.

In terms of dermatology-focused exam questions, 94% were "unconfident" to "not at all confident". Frequently requested teaching subjects were "common" and "dangerous" conditions, including drug eruptions, SJS/TEN, and morbilliform rashes. Preferred teaching modalities were consult templates, informal teaching, clinical rotations, as well as small group sessions and lectures, via morphology-based education.

Conclusions: Through all training levels, the majority of IM residents self-report a general lack of comfort with dermatologic presentations, despite an increasing frequency of encounters through their training. Residents are most interested in learning common and not-to-miss diagnoses, and preferred numerous modalities to do so.

Category: Early experiments with well-defined objectives/hypotheses

Poster 4

MELOLABIAL TRANSPOSITION FLAPS FOR THE REPAIR OF LARGE NASAL ALA AND ALAR RIM DEFECTS; A SINGLE CENTRE REVIEW OF OUTCOMES

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Reconstruction of large nasal ala and alar rim can prove challenging after Mohs Micrographic surgery. When alar defects involve the entire cosmetic subunit, or span into other cosmetic subunits, interpolation flaps are frequently utilized for repair. The obvious drawback to interpolated flaps are that they often require cartilage struts for additional support and require a second stage revision. In these scenarios, we recognize the value of the melolabial transposition flap and present our experience with this repair option.
We collected a series of 10 patients with large nasal defects repaired using the melolabial transposition flap with follow-up ranging from 3 to 48 months. The median age was 73 (range 62 to 86 years old) and size ranged from 1.9 x 1.5 cm to 3.2 x 2.7 cm. The alar rim was involved in 7 of 10 defects. At 1 week follow-up, dehiscence was noted in 2 of 10 patients with an underlying hematoma in 1 of these patients. There were no post-operative infections. Asymmetric thickening of the repaired alar required post-operative intralesional steroid in 8 of 10 patients. A second procedure to re-create the alar groove was performed in 2 of the 10 patients (it was scheduled for a third patient but not conducted). Dermabrasion was conducted in 1 of 10 patients for unacceptable scar lines.

Our patient cohort who underwent melolabial transposition for repair of large alar defects had satisfactory aesthetic and functional outcomes.   We consider this to be a reliable method of repair for large alar defects including those involving the rim.

Category: Early experiments with well defined objectives/hypotheses

Poster 5

MODULAR LEARNING MATERIALS TO FACILITATE AND ENHANCE TELEDERMATOLOGIC SERVICE IN RURAL BRITISH COLUMBIA

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The UBC teledermatology service provides remote consultative expertise to family physicians in rural and remote locations in BC via various platforms including WelTel, Zoom and 8x8. The consult characteristics and patient demographics from May to December of 2020 were presented at last year's Skin Research Day; updated data from 2021 shows similar trends in terms of the most commonly diagnosed conditions, which include eczematous dermatitis, acneiform disorders, blistering conditions and cutaneous neoplasms. We present a quality improvement project focused on the use of supplemental learning materials that address the management of these frequently encountered diagnoses/clinical presentations, including advice on diagnostic measures, counselling, therapeutic approach and procedural interventions. The nature of the teledermatology service, in which we interact primarily with the family physician as opposed to the patient, presents unique challenges, but also creates an opportunity to provide ongoing dermatologic education to primary care providers, which we hope to leverage with resources such as these. At this time, the supplemental materials have been limited to concise "handouts" which can be appended to consult reports where they are relevant, in a modular fashion; however, in the future, we hope to expand these materials to include video or other formats. We also plan to explore various methods of disseminating these resources via multimedia messaging service (MMS), including use of image/video files or links to an online directory, and evaluate which is most effective and convenient for the target practitioners.

Category: Pilot/exploratory experiments

Poster 6

ALLERGIC CONTACT LIP CHEILITIS: DATA FROM THE CONTACT DERMATITIS CLINIC AT ST. PAUL'S HOSPITAL, 2016-2021

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Cheilitis has several potential causes, including atopic dermatitis, allergic or irritant contact dermatitis, actinic damage, other inflammatory disorders, and infections.

Patch testing is a method to identify contact allergy. Since the start of the Contact Dermatitis Clinic at St Paul's Hospital in November 2016, through to April 2021, 1289 patients were patch tested. There were 94 patients with lip dermatitis and 58 had lip as the sole area of involvement. There was a positive history of atopy (eczema, asthma, or allergic rhinoconjunctivitis) in 39/58 (67%) patients. Most patients were female (52/58, 90%) and the mean age was 38 years old (range 16-69).

Forty-four patients (76%) had positive patch test reactions and 41 (71%) of these were clinically relevant. The ten most common clinically relevant allergens were: nickel sulfate (19/58), cobalt chloride (9/58), hydroperoxides of linalool (9/58), fragrance mix I (7/58), *Myroxylon pereirae* (Balsam of Peru) (7/58), hydroperoxides of limonene (6/58), fragrance mix II (4/58), ammonium persulfate (4/58), dodecyl gallate (4/58), and benzoic acid (4/58).

Forty patients were patch tested to their personal products. Four patients had positive reactions, 13 had no positive reactions, and 23 were not recorded in the database and were assumed to be negative. Of the positive reactions 3 were to lip products.

The most frequent allergens seen in our clinic are comparable to previously published data, including from the North American Contact Dermatitis Group, as well as case series from Australia, Europe, and Asia.

Allergic contact cheilitis is an important cause of lip dermatitis to evaluate for.

Category: Pilot/Exploratory Experiments

Poster 7

END-TO-END DEEP LEARNING-BASED DENOSING FOR IN VIVO MULTIPHOTON MICROSCOPY IMAGING

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Multiphoton microscopy (MPM) is an invaluable tool for direct observation of dynamic processes in life science. However, live tissue imaging acquisition is fundamentally limited by microscope optics, fluorescence yields, and the maximum permissible exposure of the illuminating light. As a consequence, MPM images can be very noisy due to patients' involuntary movements or lack of spatial resolution, which severely hampers image interpretation. In recent years, deep learning (DL) has emerged as an effective approach for noise reduction. Different from classical methods which use pre-determined mathematical functions, DL methods learn the denoising function from training data, providing a content-aware approach. To address the unmet need of denoising MPM images, we present a new algorithm based on deep convolutional neural networks (CNNs). The proposed model is based on U-net structure. This model included multipile U-nets in which an individual U-net removes noises at different scales so that it improves the performance based on a coarse-to-fine strategy. We train this model using raw (low resolution) and 10 frames averaged (high resolution) paired images. Our dataset contains over ten thousands of MPM *in vivo* skin cell images from more than ten volunteers. To validate this method, mean square error (MSE) and structural similarity index measure (SSIM) will be calculated. This method will help with translating MPM images from bench-top systems to *in vivo* human skin imaging.

Category: Pilot/exploratory experiments

Poster 8

CHILBLAIN-LIKE LESIONS (CLL) ASSOCIATED WITH COVID-19 ("COVID TOES'): A SYSTEMATIC REVIEW

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Reports of chilblain-like lesions (CLL) coinciding with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection have been described in the literature, but this phenomenon has not been critically summarized. The aim of this paper is to summarize reports of CLL coinciding with SARS-CoV-2 infection to clarify the prevalence, clinical relevance, and prognostic value of these lesions. A literature search was conducted using the Embase, Pubmed, and Scopus databases from December 2019 to June 16, 2020 using the search terms ("COVID-19" OR "coronavirus" OR "2019-nCoV" OR "SARS-CoV-2") AND ("chilblain-like" OR "COVID toes" OR "acral"). Papers that described skin changes in patients with suspected or confirmed COVID-19 were included. A total of 31 papers were summarized, representing 813 cases of CLL. Available data suggests an equal gender distribution, mean age of 21 years, and median age of 14 years. Mild extracutaneous symptoms were reported in 53% of cases and 47% were asymptomatic. CLL occurred an average of 16 days after extracutaneous symptoms. Patients with CLL were positive for SARS-CoV-2 in 15% of cases. Lesions were mainly described as asymptomatic and/or pruritic erythematous to violaceous acral macules and plaques. Partial or complete resolution occurred in 85% of cases in a mean of 13 days. The most common histologic findings were perivascular and perieccrine superficial and deep lymphocytic infiltrates. Although a causal relationship between CLL and SARS-CoV-2 has not been confirmed, the temporal association and 15% positive SARS-CoV-2 rate in affected individuals should not be ignored.

Category: Applied/functional experiments (animal models of disease and in vivo studies, etc)

Poster 9

ANALYSIS OF SUN SAFETY ATTITUDES AND BEHAVIORS AMONG CANADIANS BY SKIN TYPE

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Skin cancer is the most commonly diagnosed cancer in Canada. While the risk for individuals of darker skin tones developing skin cancer is lower than those of lighter skin tones, it remains significant. A comprehensive understanding of the attitudes and beliefs relating to sun protection within this demographic can help inform more effective targeted public education initiatives. A dataset of 1228 responses collected from annual surveys of adult Canadians from 2019 was analyzed. The survey questions assessed 45 items related to Canadians' attitudes, beliefs, and behaviors surrounding sun safety. An analysis based on Fitzpatrick skin types was performed through calculating descriptive statistics and odds ratios for each attitude and belief. Individuals of skin types IV-VI were found to have less concern for risks associated with sun exposure relative to those with skin types I-III. Moreover, they were significantly more likely to believe that sunscreen use was not as important in the winter and for individuals of darker skin tones. Crucially, individuals of skin types IV-VI also reported fewer sun protective behaviors. Notably, they were significantly less likely to wear sunscreen, check the UV index, seek shade during peak hours of the sun, or wear sun protective clothing. The overall findings suggest that Canadian adults of skin types IV-VI tend to have riskier attitudes and behaviors towards sun exposure. This provides a basis for future public health messaging to be tailored to this demographic group where misinformation is more common.

Category: Pilot/exploratory experiments (for study design, hypotheses creation, etc)

Poster 10

MED SAFE CLINIC: A NOVEL INTERDISCIPLINARY APPROACH TO PATIENTS WITH SEVERE CUTANEOUS ADVERSE REACTIONS

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MED Safe is an innovative interdisciplinary clinic combining care from Allergy, Dermatology, and Clinical Pharmacology for patients with SCARs. Patients are referred to clarify the causative medications or to provide anticipatory guidance regarding safety of future medication exposure.

Patient A is a 15-year-old healthy male of European descent who was admitted for SJS. He took ibuprofen for flu-like symptoms and developed mucositis. He also completed 10 days of cephalexin for toe infection three weeks prior. After stopping all medications, his condition improved. *In vitro* lymphocyte toxicity assay (LTA) implicated ibuprofen but not cephalexin, suggesting ibuprofen-induced SJS. Patient B is a 32-year-old healthy female of East Asian descent who developed SJS after atovaquone and proguanil was taken for malaria prophylaxis. LTA to both drugs was positive, as well as subsequent testing to doxycycline. Both patients received pharmacogenetic testing to a panel of 10 evidence-based high-risk HLA markers to identify risk with specific medication-induced SCARs. Both showed positivity to HLA-A*32:01 and HLA-B*58:01 allele associated with developing SCARs to vancomycin and allopurinol, respectively, and were advised to avoid these medications. In patient A, confirmatory LTA to Vancomycin was positive. LTA to allopurinol is pending.

Pharmacogenetic screening to a panel of HLA genotypes for patients with SCARs may help stratify future risk with other high-risk medication exposures. LTA can not only help delineate the culprit drug for SJS, but also confirm genotype-phenotype correlation. Our interdisciplinary care model can potentially optimize care for patients with SJS and potentially other SCARs.

Category: Early experiments with well-defined objectives/hypotheses

Poster 11

LABEL-FREE MULTIPHOTON MICROSCOPY IMAGING FOR GUIDING SKIN BASAL CELL CARCINOMA SURGERY

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Basal cell carcinoma (BCC) is the most common cancer type among humans. The ideal goal for surgical treatment is for the tumor tissue to be excised completely while conserving as much normal tissue as possible to reduce disfigurement. Excisional surgery with delayed pathology reporting can lead to incomplete tumor removal, or excess normal tissue being removed. Mohs microscopy surgery based on onsite frozen section histopathology facilitates complete tumor removal with minimal normal tissue being removed but is a lengthy and costly procedure. We are aiming to develop a multiphoton microscopic imaging platform to provide instantaneous tissue examination onsite during BCC surgery. It will enable fast, label-free detection of residual cancer cells based on a nonlinear optical imaging approach. This platform will be designed to provide sub-cellular resolution tissue images with quality comparable to conventional histopathology. An algorithm will be developed to indicate the location of residual tumor cells to guide further excision as necessary. In this project, we will test the system for guiding shave removal of superficial BCCs first. If successful, the platform could be further developed for guiding excisional surgery and Mohs surgery in the future.

Category: Early experiments with well defined objectives/hypotheses

Poster 12

"THE CONNECTION OF EOSINOPHILIC GASTROENTERITIS AND EOSINOPHILIC DERMATITIS- TWO SIDES OF THE SAME COIN?"

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Eosinophilic gastroenteritis (EGE), characterized by eosinophilic infiltration in the GI tract, presents with non-specific gastrointestinal symptoms. Eosinophilic dermatitis involves inflammatory eosinophilic infiltration in the skin causing a pruritic rash. It is uncommon for EGE to affect the skin. We highlight the concurrent presentation of EGE and eosinophilic dermatitis, and the underlying immunological processes.

A 68-year-old female presented to hospital with a two-week history of epigastric pain, nausea, and vomiting. Over the past 15 years, she had three episodes of severe epigastric pain accompanied by a rash, all improving with short courses of Prednisone. She also had a history of hypogammaglobulinemia suspected to be due to protein losing enteropathy. On examination, an erythematous, pruritic, papular rash was noted on her left thigh. Laboratory studies revealed peripheral blood eosinophilia and hypoalbuminemia. Gastroscopy and targeted biopsies showed increased eosinophilic infiltration in foregut consistent with EGE. A punch biopsy of the rash showed eosinophilic infiltration in the dermis layer consistent with eosinophilic dermatitis. She was started on a tapering course of oral Prednisone 40 mg daily. The abdominal symptoms and the rash subsequently improved. A follow-up gastroscopy showed resolution of foregut mucosal changes.

Patients with EGE and a rash respond well to a defined course of tapering steroid therapy. The diagnosis of EGE is challenging as the findings are usually non-specific. Peripheral blood eosinophilia may be present and histopathological analyses confirm the diagnosis. A pruritic rash could be present and may relate to underlying immunological processes involving eosinophils, mast cells, Th-2 cells, and cytokines.

Category: Pilot/exploratory experiments

Poster 13

PROCEEDING WITH PATCH TESTING AFTER CONSULTATION FOR ALLERGIC CONTACT DERMATITIS IN BRITISH COLUMBIA

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Allergic contact dermatitis is caused by a delayed hypersensitivity reaction within the skin. It is diagnosed with patch testing, whereby allergic reactions are reproduced on the back over several days. In British Columbia, formal dermatologic patch testing is provided chiefly in Vancouver. As such, many patients within and outside of the lower mainland are referred for this service, which first requires consultation and is then followed by formal testing. Despite the utility in potentially identifying allergens these patients, there are patients who choose not to proceed with undergoing formal testing after their initial consultation.

Our aim was to determine the characteristics of patients who attended their initial patch testing consultation but chose not to proceed with formal testing.

We conducted a chart review of patients seen in consultation for patch testing between Jan. 2020 and Oct. 2021 inclusive, to determine which patients proceeded for patch testing thereafter.

Some highlights of our analyses of preliminary data from Jan. 2020 to June 2021 demonstrated 64% of patients from the lower mainland underwent patch testing after consultation, versus 52% of patient from outside of the lower mainland. Among patients seen in consultation virtually, 65% of lower mainland patients underwent testing, while 47% of patients from outside the lower mainland underwent testing.

We hope to better characterize which patients do not proceed with patch testing after consultation. Further study could be undertaken to identify specific factors causing patients to not undergo testing.

Category: Early experiments with well-defined objectives/hypotheses

Poster 14

"THE PHOTOGRAPH IS OUT OF FOCUS. AGAIN!" A SINGLE REFERRAL CENTRE'S TELEDERMATOLOGY EXPERIENCE: A QUALITY-IMPROVEMENT STUDY.

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Background: The coronavirus disease-2019 (COVID-19) pandemic has resulted in a rapid integration of teledermatology into clinical practice to provide patient care while mitigating in-person contact. Unlike in-person clinical visits, the quality of patient-submitted photographs for review are an integral component of the virtual patient encounter and diagnostic assessment. Anecdotal reports cite poor focus on pathology in submitted photographs as a major complaint contributing to a suboptimal dermatologic virtual assessment.

Objectives: This quality improvement (QI) study aims to evaluate the quality of patient-submitted photographs, specifically relating to image focus, to a single referral centre for teledermatology review over one year and to assess how the image focus of submitted photographs changed throughout the pandemic.

Results: From April 2020 to April 2021, 141 patients received teledermatology care and 905 patient-submitted photographs were reviewed. Over the 1-year period, the average proportion of image focus of all photographs submitted found that $13.4 \pm 8.0\%$ were not in focus, $23.9 \pm 9.6\%$ were in partial focus, and $62.7 \pm 10.3\%$ were in focus. The quality of patient-submitted photographs, specifically relating to image focus, was not found to demonstrate a noticeable pattern change from month-to-month.

Conclusions: Teledermatology has been and continues to be a well-utilized delivery of dermatologic care throughout the COVID-19 pandemic. Poor image focus may not be as a significant problem in teledermatology as anecdotally reported. A large proportion of photographs submitted by patients for teledermatology review were either partially in focus or completely in focus requiring none to minimal additional guidance or instruction.

Category: Early experiments with well-defined objectives/hypotheses

Poster 15

5 YEARS OF PEDIATRIC SKIN BIOPSY STATISTICS FROM THE DIVISION OF DERMTOLOGY AT BC CHILDREN'S HOSPITAL

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Objectives: To evaluate all skin biopsies from BC Children's Hospital over a 5-year period.

Methods: All skin biopsies signed out at BC Children's hospital between January 2016 and December 2020 were evaluated to include only biopsy reports submitted by members of the Division of Dermatology. Retrospective chart evaluation was completed amongst these patients with demographic and clinical data recorded.

Results: 239 biopsies were performed from 2016-2020; 54% of the biopsies were from male patients and 46% were from females; 29% of biopsies were in patients <5 years old, 25% from 5-9 years old, 31% from 10-14 years old, and 19% from patients 15 years or older; 22 biopsy procedures occurred on the face of patients 6 years or older, and 12 procedures occurred on the face of patients <6 years old; the most common histopathologic diagnostic categories included inflammatory dermatoses (40%), benign neoplasms (24%), vascular proliferations (12%), and malignant neoplasms (7%); prebiopsy clinical impressions were consistent with histopathologic diagnoses in 72%.

Conclusions: Skin biopsies were performed amongst patients of all age categories, with a large proportion occurring in those under 5 years of age. Biopsies were mostly necessary for inflammatory dermatoses and benign neoplasms, with clinicopathologic concordance in nearly 3 out of 4 cases.

Category: Pilot/exploratory experiments

Poster 16

EXPLORING CONTINUING MEDICAL EDUCATION VIA TELE-DERMATOLOGY CONSULTS FOR RURAL PHYSICIANS

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There is reduced access to dermatology care in most rural and remote communities in British Columbia (designated by the Rural Subsidiary Agreement, Feb 2020) in the Master agreement currently in force. There is also a shared perception among some practitioners in continuing professional development (CPD) that the preferred form is delivered at the "point of care", along with the consult. Since our telemedicine service allows that opportunity, we wanted to survey the evidence for the "point of care" hypothesis being superior in any way: more likely to be read, tried, or become useful in daily practice. The comparison was with other forms of CPD such as didactic lectures, unsolicited handouts, or other more structured formats. We performed a MEDLINE Ovid search (All Years-Dec 29th, 2021) with the keywords "Telemedicine" AND "Education, Medical, Continuing" and manually reviewed abstracts as well as cross-referenced relevant cited articles for qualitative analysis. We were not able to find adequate evidence to support the working hypothesis that CPD at the "point of care" was in fact superior to other forms. Although there are studies that do show value in the method, they were not directly comparable enough to allow "evidence-based" conclusions. In fact, and to the best of our knowledge, none have been designed that way. Also, it is obvious that the effectiveness of any education is also related to its quality, something which is more difficult to control. We present our practical conclusions and ideas for "next steps". We hope for a lively discussion.

Category: Pilot/exploratory experiments

Poster 17

THE SKIN TONE HUE: A QUANTIFIABLE METRIC FOR DESCRIBING SKIN COLOUR

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Background and Hypothesis: Normal skin colour depends mainly on two factors: melanin and hemoglobin. Previous literature postulates that skin colour, though varying in lightness and saturation due to melanin content, are all one consistent hue, as melanin acts as a neutral density filter over the red hemoglobin of blood and does not alter the hue. This study explores the hypothesis that a common skin tone hue can be quantified.

Methods: The average hue of skin pixels was calculated from two datasets: a public dataset of ~50,000 skin pixels derived from internet images, under normal lighting conditions and without post-processing, and a set of 50 high resolution images taken under consistent lighting with manual white balancing from a dermatology clinic ($\sim 2.2 \times 10^8$ skin pixels). The pixels were converted into the hue-saturation-value (HSV) colour space and the average response in the hue channel was calculated, along with measures of standard deviation.

Results: The dataset of 50 images generated an average hue of 0.068±0.015, whereas the public dataset had an average hue of 0.059±0.048. As hue can be expressed in degrees, this corresponds to 24.6±5.2° and 21.3±17.4°, respectively. In terms of colour response, the skin tone hue approximates to light within the range of 600nm to 650nm.

Conclusions: Both datasets resulted in values within one standard deviation of each other, which supports the hypothesis that skin tone can be generalized as a tight range of hues. The skin tone hue can be used to validate other skin imaging tools, such as colour constancy algorithms.

Category: Pilot/exploratory experiment

Poster 18

INTEGRATING DERMATOLOGY SERVICES INTO A SOCIAL PEDIATRICS NETWORK: 8 YEARS OF EXPERIENCE IN THE RICHER (RESPONSIVE, INTERDISCIPLINARY/INTERSECTORAL, CHILD/COMMUNITY, HEALTH, EDUCATION, AND RESEARCH) PROGRAM

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Evidence is mounting that adverse childhood experiences (ACEs) and socioeconomic determinants have profound and lasting impacts on health.[1-3] It is estimated that 50% of health outcomes are impacted by socioeconomic factors, with much of this impact occurring during early childhood.[4] Social pediatrics is "an approach to child health that focuses on the child, in illness and in health, within the context of their society, environment, school, and family", while fostering protective factors to mitigate the impact of ACEs and care for the whole child with integration into community services.[5-9]

The RICHER program was created in 2006 in Vancouver, BC to connect with and support socially isolated and marginalized families living in poverty to provide health care, coordinate social services, and improve health outcomes. Pediatric dermatology was integrated as a service in 2012, and the program currently serves approximately 400 children.

We performed a descriptive, retrospective chart review of patients from the RICHER dermatology clinic from February 2012 to February 2020 to learn more about the patients who had been served by the clinic. This time period included 125 pediatric dermatology clinics with 338 total patient visits. Approval was obtained from the University of British Columbia Children's and Women's Ethics Board.

Our findings highlight critical lessons learned from working within a social pediatrics model. We hope to show that dermatology can play a unique role within a social pediatrics initiative, and can have long term positive impacts on health outcomes for at-risk youth.

Category: Early experiments with well defined objectives/hypotheses

Poster 19

ORAL TRANEXAMIC ACID TREATMENT LONGER THAN 6 MONTHS FOR MELASMA PATIENTS: A RETROSPECTIVE CASE SERIES

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Melasma is a common acquired disorder of primarily facial hyperpigmentation that predominantly affects those with skin phototypes III and IV. It may be exacerbated by sunlight, oral contraceptives, pregnancy, and genetic factors. Due to its appearance and recalcitrant nature, melasma can cause significant impairment to quality of life. Long-term treatment options remain limited as chronic use of standard depigmenting agents such as hydroquinone are associated with increased risk of exogenous ochronosis and other cutaneous adverse events. With mounting evidence implicating vascular abnormalities in melasma, oral tranexamic acid (TXA), an antifibrinolytic, has been explored and found to be an effective off-label treatment for melasma. Unfortunately, its use is often limited to three to six months duration due to a lack of long-term safety data regarding its thrombotic risk. Thus, patients must often cycle between therapies to mitigate these risks. However, gynecologic studies of women who took up to a total dose of 526.5g of oral TXA over 27 months or 19.5g/month for heavy menstrual bleeding reported no significant increase in thromboembolic events. As such, we hypothesize that long-term use of oral TXA for melasma is safe given that total doses used in this setting are much lower, around 42g for a typical regimen of 250mg twice daily, or 14g/month. A retrospective chart review will be performed of patients ≥18 who were treated with oral TXA for melasma for ≥ 6 months at a local dermatologic centre. Treatment response will be evaluated using the Modified Melasma Area and Severity Index (mMASI) score using de-identified photographs at baseline, 6 months, 1 year, and 2 years. Adverse events during treatment will be reported as documented. Incidence of and duration to relapse upon cessation of oral TXA will also be reported.

Category: Pilot (retrospective chart review)

Poster 20

IGA AUTOANTIBODIES TARGET PULMONARY SURFACTANT IN COVID-19 PATIENTS

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Introduction: Severe coronavirus disease 2019 (COVID-19) frequently induces autoimmunity with wide-ranging health implications. While the lung is the primarily affected organ of infection, local mechanisms involved in the development of autoimmunity remain largely unknown. In this study, we investigate the presence and effect of lung-specific autoantibodies induced by COVID-19.
Methods: We established a prospective clinical observational study with cohorts of mild and severe COVID-19 patients at three Swiss tertiary hospitals. To identify potential autoantibodies, we used protein pull-down columns, mass spectrometry, immunofluorescence staining and enzyme-linked immunosorbent assays (ELISA). Given that we have previously shown that total IgA are elevated in severe COVID-19 and that they are part of the primary mucosal immune defense, we focused on IgA.
Results: Gene set enrichment analysis of the alveoli of post-mortem COVID-19 lungs revealed an expression pattern similar to that of systemic lupus erythematosus (P=0.02), strongly hinting towards the presence of autoimmune processes. Immunofluorescence staining of these lungs displayed prominent IgA deposition that co-localized with surfactant proteins. Remarkably, no IgA deposition was found in non-COVID19-controls with other lung diseases. In sera of COVID-19 patients, pull-downs with poractant alfa showed immunoglobulins binding to surfactant proteins (SPs). Concurringly, ELISA coated with recombinant SPs detected anti-SP IgA only in blood of severe COVID-19 patients.
Conclusion: Our data suggest that IgA-driven autoimmunity against surfactant proteins contribute to disease progression of COVID-19. This can improve patient care by defining additional pathomechanisms as important contributors to disease progression.

Category: Early experiments with well-defined objectives/hypotheses